

THE OFFICE OF REGULATORY STAFF

CORRECTED

REVISED DIRECT TESTIMONY & EXHIBITS

OF

DR. DOUGLAS H. CARLISLE

MARCH 15, 2018

Correction:

1. Revised Direct Testimony,
page 12 of 14, line 14 -- delete the
word "over" and replace with
"occurred in"



DOCKET NO. 2017-292-WS

**Application of Carolina Water Service, Incorporated for
Approval of an Increase in Its Rates for Water and Sewer
Services**

1 **REVISED DIRECT TESTIMONY AND EXHIBITS OF**
2 **DR. DOUGLAS H. CARLISLE**
3 **ON BEHALF OF**
4 **THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF**
5 **DOCKET NO. 2017-292-WS**
6 **IN RE: APPLICATION OF CAROLINA WATER SERVICE,**
7 **INCORPORATED FOR APPROVAL OF AN INCREASE IN ITS RATES FOR**
8 **WATER AND SEWER SERVICES**

9
10 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.**

11 **A.** My name is Douglas H. Carlisle. My business address is 1401 Main Street, Suite
12 900, Columbia, South Carolina 29201. I am employed by the State of South Carolina as an
13 Economist for the Office of Regulatory Staff (“ORS”).

14 **Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

15 **A.** I received a Bachelor of Arts from Brown University, a Master’s Degree in Public
16 Administration and a Ph.D. in Government and International Relations, both from the
17 University of Virginia. I have previously testified before the Public Service Commission
18 of South Carolina concerning rate of return. I am a Certified Rate of Return Analyst. After
19 graduate school, I was employed as an evaluator and evaluator-in-charge for about seven
20 years at the United States Government Accountability Office in Washington, D.C. After
21 leaving the GAO, I worked as a market consultant and instructor at Midlands Technical
22 College in South Carolina. Next, I began my employment with the State of South Carolina
23 at the State Reorganization Commission, which functioned as an audit follow-up entity. I

1 moved to my next position with the South Carolina House Education & Public Works
2 Committee. Before joining ORS, I worked five years for the State Chief Economist as an
3 analyst in the Economist Research Section and as an adjunct to the Board of Economist
4 Advisors. I assumed my current position at ORS in 2005.

5 **Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC SERVICE**
6 **COMMISSION OF SOUTH CAROLINA?**

7 **A.** Yes.

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

9 **A.** My purpose is to recommend the appropriate range for return on equity for Carolina
10 Water Service, Inc. (“CWS” or “the Company”). I will present my conclusions and their
11 bases for the appropriate return on equity for CWS.

12 **Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY (“ROE”)?**

13 **A.** I recommend an ROE of 9.08%, based on the calculated average of my results using
14 three methods of determining an appropriate ROE (Revised Exhibits DHC-9, DHC-11, and
15 DHC-13, p. 3 of 3, respectively). The following table summarizes my results:

Method	Indicated Cost of Equity
DCF	8.82%
CEM	8.89%
CAP-M	9.54%
Average	9.08%

16 **Q. WHAT STANDARDS GOVERN RATE OF RETURN?**

1 **A.** The Supreme Court of the United States set standards in two landmark decisions.

2 In the first case, involving a water company, the Court declared:

3 A public utility is entitled to such rates as will permit it to earn a return on
4 the value of the property which it employs for the convenience of the public
5 equal to that generally being made at the same time and in the same general
6 part of the country on investments in other business undertakings which are
7 attended by corresponding risks and uncertainties; but it has no
8 constitutional right to profits such as are realized or anticipated in highly
9 profitable enterprises or speculative ventures. The return should be
10 reasonably sufficient to assure confidence in the financial soundness of the
11 utility and should be adequate, under efficient and economical management,
12 to maintain and support its credit and enable it to raise the money necessary
13 for the proper discharge of its duties.¹

14 The *Bluefield* decision, was later reinforced by the decision in another case,

15 *Federal Power Commission v. Hope Natural Gas Company*:

16 The fixing of “just and reasonable” rates, involves a balancing of the
17 investor and consumer interests.... From the investor or company point of
18 view it is important that there be enough revenue not only for operating
19 expenses but also for the capital cost of the business. These include service
20 on the debt and dividends on the stock.... By that standard the return to the
21 equity owner should be commensurate with returns on investments in other
22 enterprises having corresponding risks. That return, moreover, should be
23 sufficient to assure confidence in the financial integrity of the enterprise, so
24 as to maintain its credit and attract capital.²

25 **Q. DOES CWS HAVE TRADED COMMON STOCK?**

26 **A.** No, its stock is entirely held by Utilities, Inc. of Northbrook, Illinois, which also
27 has no publicly traded stock. Utilities, Inc. was purchased by Corix Utilities in 2012. Corix
28 is owned by the British Columbia Investment Management Corporation.
29

¹ *Bluefield Water Works & Improvement Company. v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-3 (1923).

² *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591, 603 (1944).

1 **Q. IF NEITHER THE COMPANY NOR ITS PARENT HAS TRADED STOCK, HOW**
2 **DID YOU PERFORM YOUR ANALYSIS TO RECOMMEND A RETURN ON**
3 **EQUITY?**

4 **A.** To develop a fair rate of return recommendation for CWS, I evaluated the return
5 requirements of investors on the common stock of three groups: publicly held water and
6 sewerage service companies and two Comparable Earnings Model (“CEM”) groups. I then
7 applied to the first group, two well-known and generally accepted methods for determining
8 a recommended return on equity, the Discounted Cash Flow (“DCF”) Model and Capital
9 Asset Pricing Methods (“CAP-M”).

10 **Q. WHY DID YOU EXAMINE DATA ON COMPANIES WITH TRADED STOCK?**

11 **A.** First, CWS has asked for its rates to be determined using the rate-of-return on rate-
12 base methodology. Second, publicly traded water utilities are, after all, in the same line of
13 business as CWS and so share similar risks. Third, data is far more readily available about
14 publicly traded companies, so it is practical to use them.

15 **Q. HOW DID YOU SELECT THESE COMPANIES AND GROUPS?**

16 **A.** For my DCF analysis I selected those companies classified as “water utilities” by
17 Value Line or by *Yahoo! Finance* that engage in water distribution to customers and obtain
18 most of their revenues from utility services, which include water and sewerage. For my
19 CEM analysis I selected companies with comparable β 's to those of the companies in my
20 DCF Proxy Group.

21 **Q. WHAT CAPITAL STRUCTURE DID YOU USE FOR YOUR ANALYSIS OF CWS?**

22 **A.** I used the Capital Structure from the application, 51.89% Equity and 48.11%
23 Long-Term Debt. I, adjusted the Cost of Debt from 6.60% to 6.58% to protect the ratepayer

1 from the unfavorable terms of the Long-Term Debt as structured by the Company. This
2 position is consistent with my position in Docket Nos. 2013-201-WS, 2013-275-WS and
3 2015-199-WS.

4 The objectionable features of the Cost of Debt arise from multiple factors:
5 consolidation of Utilities Inc.'s ("UI,"s, the parent company's) debt into one (1) flotation
6 when interest rates were very high; a make-whole provision, which has prevented UI from
7 refinancing its Long-Term Debt at more favorable rates; and a ten (10) year interest-only
8 period, which greatly increased the overall cost of Debt by adding \$59 million to the cost
9 paid by customers of UI's various subsidiaries. See Revised Exhibit DHC-14.

10 **Q. COMPARE THE THREE METHODS THAT YOU USED TO CALCULATE AN**
11 **APPROPRIATE COST OF EQUITY FOR CWS.**

12 **A.** The three methods I used have different strengths. DCF focuses on money coming
13 into and flowing out of companies. Specifically, the DCF focuses on the flow of money
14 out through dividends and the flow of money into companies through revenues, which are
15 then netted to Earnings per Share ("EPS") and allocated to Book Value per Share ("BVPS")
16 and Dividends per Share ("DPS"). By contrast, the CEM focuses on changes in Book
17 Value of non-regulated companies and adjusts for risk to reveal an appropriate ROE. The
18 CEM itself does not expressly have a generally accepted approach to this adjustment, but
19 I have developed a method that uses well-known types of data. CEM is intuitive in that,
20 other things being equal, more assets should mean more production. The CAP-M, by
21 contrast, focuses on the "hurdle rate," that rate of return that an investor must realize to
22 surpass competing potential investments of comparable risk. All three methods focus on
23 what investment accomplishes and not upon corporate preferences.

1 **Q. WHAT IS THE BASIS FOR THE DCF MODEL?**

2 **A.** This model's basic premise is that investors value stocks based on the stream of
3 cash flows they can enjoy for the indefinite future and that the only certain flow of cash is
4 the value of dividends received. The DCF is a perpetuity, so cash must flow indefinitely;
5 therefore, in the long run, dividend growth cannot exceed company growth. If dividends
6 were to grow faster than the underlying company growth, the dividend would eventually
7 become unsustainable, and the model's basic assumptions would be violated. The growth
8 in dividends, therefore, cannot exceed the growth in earnings. In fact, all indicators of
9 growth must, in the long run, grow at rates compatible with each other. The DCF model
10 is expressed by this formula:

11
$$K = D_1/P_0 + g;$$

12 where K = cost of equity capital (ROE); D₁ = current yearly Dividends per Share
13 ("DPS"); P₀ = purchase price; and g = growth.

14 **Q. HOW DO YOU TAKE INTO ACCOUNT THE ASSUMPTIONS ABOUT**
15 **GROWTH IN YOUR ANALYSIS?**

16 **A.** There are several steps for applying the assumptions of the DCF Model. Each
17 strategy, in logical order, points to the next.

18 First, the DCF is a long-term model, so some temporary departures from a straight-
19 line estimate of ROE are to be expected. This reasoning implies that having several
20 indicators of growth is better than having just one. Such data is readily available (Revised
21 Exhibit DHC-3) and useful to reinforce comparability, since the Proxy Group companies
22 do vary in their characteristics. See Revised Exhibit DHC-4. My analysis uses four

1 indicators: 1) EPS (Revised Exhibit DHC-5); 2) BVPS (Revised Exhibit DHC-6); 3) DPS
2 (Revised Exhibit DHC-7); and, 4) Revenue or Sales (Revised Exhibit DHC-8).

3 Second, my analysis adheres to a steady-state model by using several periods to
4 calculate historical trends and to dampen any temporary divergences. This method
5 provides a more reliable guide to long-term growth. For that reason, I have used three-
6 five- and ten-year averages/means and medians. This approach lessens the impact of any
7 transient phenomena. Such reasoning appeals to common sense. For example, an investor
8 would need some convincing evidence to believe that a company whose earnings and book
9 value having been growing at 5% would suddenly grow at 25%. On the other hand, true
10 departures from the trend must be recognized in a way that a naïve straight-line projection
11 from the past will not.

12 Third, my approach recognizes the importance of analysts' opinions. Although it
13 might seem that analysts make their living discovering new trends or departures from old
14 ones, their predictions also moderate analyses based strictly on historical data and add some
15 balance to the estimation of growth. Investors know about analysts and may consult them
16 and be influenced by estimates.

17 **Q. HOW DOES YOUR DCF ANALYSIS CONFORM TO THE MODEL WITH**
18 **REGARD TO THE OTHER TERMS OF THE BASIC DCF EQUATION?**

19 **A.** The term, D_1/P_0 , finds a simple expression as Dividend Yield. A very narrow
20 interpretation of the formula would insist upon using a price from the previous year and
21 determining the yearly dividend paid as of a year later. Investors know about companies'
22 histories of dividend increases and they expect increases if a company has a history of
23 increasing dividends. Companies announce their intention to maintain or increase their

1 dividends during the year and price data tends to be an average of prices over time. The
2 current dividend yield reflects what has happened leading up to the current moment. Thus,
3 the problem with the dividend yield is not, knowing what it is at a given moment, but rather
4 that investors expect it to grow. Since investors know that a company may announce an
5 increase in its dividend in the upcoming twelve months after the dividend yield information
6 is available, a simple convention to recognize such a possible increase is to multiply the
7 yield by half-again the growth rate, producing this modified equation in which K is the
8 Cost of Equity:

$$K = ([D_1/P_0]*(1+(1/2 g))] + g$$

9
10 While this equation may seem to violate the assumptions of the DCF by having
11 dividends outpace growth (“g”) or by restricting dividends to a growth rate below
12 companies’ growth rates, in fact it is consistent with the model. Expectations of growth
13 are simply applied to dividend yield in this equation. Dividend yield is brought into balance
14 with growth because expectations are incorporated into both parts. The difference between
15 how expectations are incorporated is that, for growth, they are incorporated in the
16 development of the “g” number, whereas, in the dividend yield, they are incorporated in
17 the equation itself.

18 **Q. WHAT TRENDS DOES YOUR DCF ANALYSIS INDICATE?**

19 **A.** Revised Exhibits DHC-5, DHC-7, and DHC-9 reveal high EPS growth, slightly
20 lower DPS growth, and relatively low Dividend Yields, respectively. In the long run, EPS
21 growth will be constrained by Sales growth and BVPS will need to be more comparable to
22 the future EPS growth. Meanwhile, if the stock prices of the companies in the Proxy Group
23 growth moderately, remain level, or fall, DPS growth will eventually raise Dividend

1 Yields. The recent changes in taxes, however, mean that many investors will get to keep
2 more of their dividends because they will pay lower taxes on them. Accordingly, in the
3 long-run, companies will not have to pay as high dividends to meet investors' demand.

4 **Q. WHAT WAS YOUR DCF RESULT?**

5 **A.** My DCF indicates a cost of Equity of 8.82% shown in my DCF summary
6 calculation in Revised Exhibit DHC-9.

7 **Q. WHAT IS THE BASIC PREMISE OF THE CEM?**

8 **A.** This Model focuses on the costs of goods and services that generate earnings. For
9 this reason, CEM analyses look at changes in book value (Revised Exhibits DHC-10 and
10 DHC-11). Changes in book value indicate a greater capacity to produce. The logic of CEM
11 is analogous to that of the DCF. The change in book value comes from the store of value
12 in retained equity. With prudent management and no revolutionary developments, the
13 greater the book value of a company, the greater the resulting ROE.

14 **Q. WHAT ARE THE MAJOR CONSIDERATIONS IN IMPLEMENTING THE CEM
15 AND HOW DID YOU ADDRESS THEM?**

16 **A.** The Model does not indicate a single approach to ascertaining what is comparable
17 and so analyses often look at great quantities of data over long periods of time. Analyses
18 may use whole sectors of the economy, several sectors of the economy, or even stock
19 indices and show several decades of results. While such approaches mitigate threats to the
20 Model, there is no single standard for comparability. The lack of a benchmark makes
21 conclusions from the data judgmental. Although there is nothing wrong with applying
22 judgment to interpret results, I have used a more transparent approach.

1 The standard I used to select comparable stocks was the range of β that Value Line
2 provides for the companies in my DCF Proxy Group. Leaving aside academic arguments
3 about its predictive value, β has intuitive appeal because stocks whose prices vary in the
4 same manner as those of traded water and water and sewer companies probably have
5 something in common with respect to their earning capacity. As I pursued my method
6 following the CEM, however, I encountered challenges.

7 **Q. WHAT CHALLENGES DID YOU ENCOUNTER IN CALCULATING THE CEM?**

8 **A.** My procedure for calculating the CEM is challenging in two respects: (1) the
9 number of companies with predicted BVPS growth has shrunk to such an extent that there
10 are very few companies when the CEM proxy group is highly stratified by β ; (2) a
11 disconnection has developed between β and BVPS. The dearth of companies weakens
12 generalizations about companies making them less reliable and the deterioration in the
13 usefulness of highly stratified β 's hampers risk-adjustment and comparability.
14 Accordingly, I have changed my method to make my results more reliable.

15 The underlying cause of these challenges is the lingering effects of the Great
16 Recession, when asset values dropped and there was a net decline in Owners' Equity, viz.,
17 Book Value, for three quarters. See Revised Exhibit DHC-12.

18 **Q. HOW HAVE YOU ADDRESSED THESE CHALLENGES?**

19 **A.** I have reduced the number of β strata, substituted five-year β 's for ten-year β 's,
20 used only current β 's, and used different groups for my retrospective CEM and prospective
21 CEM. These techniques make my analysis less vulnerable to threats of reliability by
22 avoiding a very small and perhaps unrepresentative selection of companies and by

1 sidestepping the period of the Great Recession, when unregulated companies shed assets
2 and total manufacturing equity fell.

3 **Q. WHAT WERE THE RESULTS OF YOUR CEM ANALYSIS?**

4 **A.** The retrospective part of my analysis produced a 9.15% cost of Equity (Revised
5 Exhibit DHC-10). The prospective portion produced an 8.63% cost of Equity (Revised
6 Exhibit DHC-11). The average of the retrospective or historical result and the prospective
7 or projected results is my CEM result of 8.89% (Revised Exhibit DHC-11).

8 **Q. WHAT IS THE BASIC PREMISE OF THE CAP-M?**

9 **A.** This model assumes that there is a knowable Risk-Free Rate of Return (“ R_f ”),
10 Market Rate of Return (“ R_m ”), and Equity Risk Premium (“ERP”). In this respect, the
11 CAP-M belongs to a family of models and methods for which a risk premium is central.
12 The CAP-M uses the β statistic to adjust the ERP for the risk of particular companies,
13 sectors, or even portions of companies.

14 **Q. HOW IS THE PREMISE REALIZED IN CAP-M ANALYSIS?**

15 **A.** At the basic, general level, CAP-M uses the following formula:

16
$$K = R_f + (\beta * (R_m - R_f)),$$

17 Where K is ROE and the other notations are those I have discussed. The innermost
18 parentheses contain the ERP, which is adjusted for risk by β , with the assumption that all
19 risks not captured by β can be diversified away.

20 **Q. WHAT ARE SOME OF THE ISSUES SURROUNDING THE CAP-M AND ITS**
21 **APPLICATION?**

22 **A.** There have been debates about whether β properly measures systematic risk, with
23 some researchers finding that it does not and others finding that it does. Some people have

1 taken issue with whether β should be adjusted, which is not an issue with my analysis, since
2 I use Value Line's adjusted β 's. Another set of issues turns on whether the R_m is properly
3 measured by the source, Stocks, Bonds, Bills and Inflation, 2017 ("SBBI") or whether
4 different periods of time should be used. Within that debate is another issue related to the
5 use of the arithmetic mean ("simple average") or the geometric mean ("compound annual
6 growth rate"). I use the latter because it reflects the long-term returns³ that an investor
7 could actually have realized.

8 **Q. DESCRIBE YOUR APPROACH REGARDING THE DATA YOU USED FOR THE**
9 **Rf.**

10 **A.** The data often used for computing the CAPM cost of equity has undergone certain
11 changes that deserve emphasis. The database from the Center for Research and Security
12 Prices ("CRSP") in SBBI, which provides the typical long-term return of companies, was
13 originally based upon the New York Stock Exchange, but has added more data from more
14 exchanges. This change ~~over~~ **occurred in** the years after the initial construction of the deciles, which
15 in turn were constructed from data first assembled by CRSP. The change was far from
16 merely technical. The argument that there is a Small Company Premium rests logically
17 first upon being able to stratify companies' returns by companies' sizes in the form of
18 capitalization. Originally, CRSP organized companies into deciles, groups of tenths of the
19 total number of companies or "equally populated groups." When companies from other
20 exchanges were added, they were assigned by equivalency to the capitalization range of
21 the existing deciles. As a result, the deciles were no longer equally populated. In short,

³ Ravi Jagannathan and Ellen R. McGrattan, "The CAPM Debate," Federal Reserve Bank of Minneapolis Quarterly Review, Vol. 19, No. 4, fall 1995, pp. 2-17.

1 they were no longer true deciles, but rather some sort of “decile-hybrids.” See Revised
2 Exhibit DHC-1.

3 To adjust for the change in SBBI, I weight the decile-hybrids by the number of
4 companies in them. Since each of the ten (10) groups comprises companies in a range of
5 capitalization, this treatment does not lessen whatever impact company size may have, but
6 it does configure the data to resemble the investment menu that investors face. After all,
7 investors, be they individuals or professional investors working for an investment entity,
8 invest in discrete companies, not in capitalizations. I am aware that the size of a company
9 is alleged to influence the total return an investor may receive from it and I calculated the
10 average SBBI-decile return to make my results resemble one that investors over a long
11 period might face. See Revised Exhibit DHC-13.

12 **Q. IF YOU DISAGREE WITH THE SMALL COMPANY PREMIUM, WHY DID YOU**
13 **USE THE DECILE-HYBRIDS?**

14 **A.** The main reason I used decile-hybrids is because they are embedded in the main
15 source of data often used in CAP-M analyses. I used decile-hybrids in my analysis to be
16 consistent with my practice in previous cases.

17 **Q. HOW DID YOU PERFORM YOUR CAP-M?**

18 **A.** My first calculation treated each SBBI decile as equal. For the R_f I used the
19 projected 30-year Treasury bond yield, using a projection from a poll of economists
20 conducted by Blue ChipTM. This consensus forecast looks 18 months into the future. It is
21 currently 3.7% (Revised Exhibit DHC-2). For the R_m , I used the compound average growth
22 rate for stocks as published in SBBI. I averaged the returns for the deciles of company size
23 and obtained an average (geometric mean or compound annual growth rate) of 11.27%

1 (Revised Exhibit DHC-13, p. 3 of 3). The ERP is the difference of these two numbers, or
2 7.57%. The median β for the water companies in my DCF Proxy Group is 0.75 (Revised
3 Exhibit DHC-13, p. 1 of 3. When one multiplies 7.57% by 0.75, which is water-company
4 β , the result is 5.68%, which is the risk-adjusted ERP. This step recognizes the relative
5 risk of water companies compared to R_m . The calculation shows that a company
6 comparable to CWS should receive 3.70% points (the R_f) above the ERP, which produces
7 9.38% (Revised Exhibit DHC-13).

8 My second calculation weighted each SBBI CRSP decile by the number of
9 companies in it. The weighted average was 11.70%, which resulted in an ERP of 8.00%
10 after subtracting the R_f of 3.7%. Adjusting the ERP for risk produced 6.00% for a total cost
11 of Equity of 9.70%. See Revised Exhibit DHC-13.

12 Given the reasons I have discussed, my CAP-M has a range of 9.38%-9.70%. I
13 have averaged my two CAP-M results for a final CAP-M of 9.54%.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

15 **A.** Yes, it does.

Office of Regulatory Staff
SBBI: 2013 Valuation Handbook Excerpt
Carolina Water Service, Inc.
Docket No. 2017-292-WS

**DECILES ARE NOT REALLY DECILES AND “DECILE” PORTFOLIOS HAVE TO BE REBALANCED
FOUR TIMES A YEAR**

The term “decile” holds methodological appeal until one realizes that it is a questionable construct for two reasons. First, the deciles in SBBI do not really hold equal numbers of companies (as shown in Revised Exhibit DHC-13). Second, since it is time-series data, the Center for Research and Security Prices (“CRSP”) companies are constantly changing “deciles” due to company growth, merger, bankruptcy, or company shrinkage. The absence of data indicating a -100% change in stock value and a concomitant change in any dividends, as would occur from a corporate bankruptcy is called Survivorship Bias. Even if bankruptcy was not the cause for a stock’s being delisted and even if returns were higher than listed stocks’, the lack of assignment of a stock to a decile, even if were not a true decile, would distort the data on returns and the relationship of returns to capitalization.

The following quotation is from Ibbotson SBBI: 2013 Valuation Handbook, p.85. I have broken a single paragraph into two halves, the first relevant to the “decile” issue and the second to how dynamic and potentially distorting the capitalization-decile may be.

All companies on the NYSE [New York Stock Exchange] are ranked by the combined market capitalization of their eligible equity securities. The companies are then split into 10 equally populated groups, or deciles. Eligible companies traded on the NYSE, the NYSE Amex (AMEX), and Nasdaq National Market (NASDAQ) are then assigned to the appropriate deciles according to their capitalization in relation to the NYSE breakpoints.

The portfolios are rebalanced, using closing prices for the last trading day of March, June, September, and December. Securities added during the quarter are assigned to the appropriate portfolio when two consecutive month-end prices are available. If the final NYSE price of a security that becomes delisted is a month-end price, then that month’s return is included in the quarterly return of the security’s portfolio. When a month-end NYSE price is missing, the month-end value of the security is derived from merger terms, quotations on regional exchanges, and other sources.

Office of Regulatory Staff Blue Chip Financial Forecasts March 1, 2018

Carolina Water Service, Inc.

Docket No. 2017-292-WS

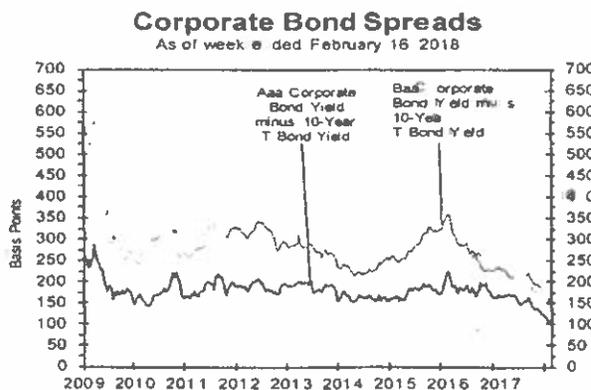
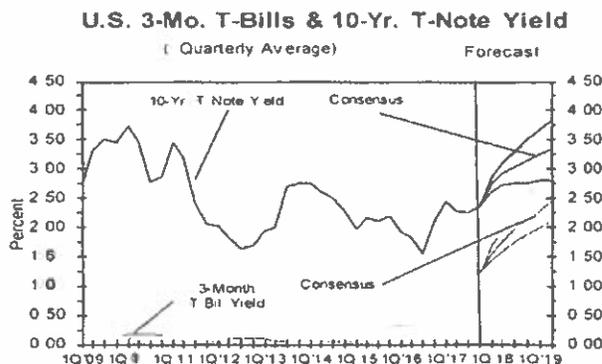
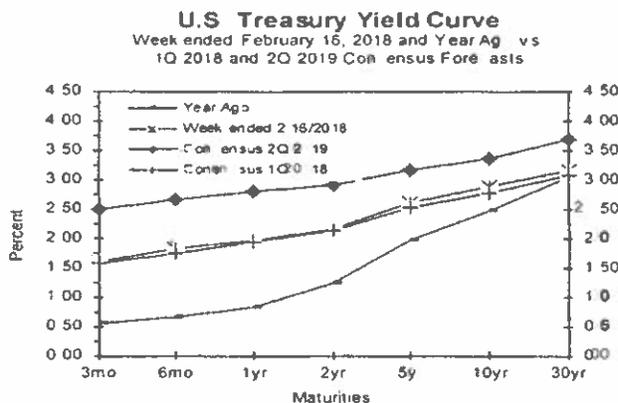
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ MARCH 1, 2018

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

Interest Rates	History								Consensus Forecasts-Quarterly Avg.							
	Average For Week Ending				Average For Month				Latest Qtr		1Q 2018	2Q 2018	3Q 2018	4Q 2018	1Q 2019	2Q 2019
	Feb. 16	Feb. 9	Feb. 2	Jan. 26	Jan	Dec	Nov	4Q 2017								
Federal Funds Rate	1.42	1.42	1.42	1.41	1.41	1.29	1.16	1.20	1.5	1.7	1.9	2.2	2.3	2.5		
Prime Rate	4.50	4.50	4.50	4.50	4.50	4.38	4.25	4.29	4.6	4.8	5.0	5.2	5.4	5.6		
LIBOR 3-mo.	1.86	1.80	1.78	1.75	1.73	1.59	1.42	1.46	1.8	2.0	2.2	2.4	2.6	2.8		
Commercial Paper, 1-mo.	1.53	1.50	1.50	1.52	1.50	1.38	1.15	1.22	1.5	1.7	2.0	2.2	2.4	2.5		
Treasury bill 3-mo.	1.60	1.54	1.46	1.43	1.43	1.33	1.23	1.22	1.6	1.8	2.0	2.1	2.3	2.5		
Treasury bill 6-mo.	1.82	1.71	1.65	1.64	1.62	1.49	1.37	1.37	1.7	1.9	2.1	2.3	2.5	2.6		
Treasury bill, 1 yr	1.97	1.89	1.87	1.79	1.80	1.69	1.54	1.54	1.9	2.1	2.3	2.5	2.6	2.8		
Treasury note 2 yr.	2.15	2.10	2.14	2.09	2.02	1.83	1.68	1.68	2.1	2.3	2.5	2.6	2.8	2.9		
Treasury note, 5 yr	2.61	2.54	2.53	2.44	2.36	2.17	2.04	2.06	2.5	2.7	2.8	2.9	3.1	3.2		
Treasury note, 10 yr.	2.87	2.82	2.75	2.65	2.56	2.40	2.36	2.37	2.8	2.9	3.0	3.1	3.3	3.3		
Treasury note, 30 yr.	3.14	3.10	2.99	2.91	2.86	2.77	2.81	2.82	3.1	3.2	3.4	3.5	3.6	3.7		
Corporate Aaa bond	3.97	3.89	3.79	3.73	3.68	3.63	3.70	3.69	3.8	4.1	4.3	4.4	4.6	4.7		
Corporate Baa bond	4.54	4.45	4.31	4.26	4.24	4.21	4.29	4.27	4.5	4.8	5.0	5.2	5.3	5.4		
State & Local bonds	3.58	3.57	3.53	3.45	3.42	3.46	3.41	3.41	3.6	3.8	3.9	4.1	4.2	4.3		
Home mortgage rate	4.38	4.32	4.22	4.15	4.03	3.95	3.92	3.92	4.3	4.5	4.6	4.7	4.9	5.0		

Key Assumptions	History								Consensus Forecasts-Quarterly							
	2016		2016		2016		2017		2017		2018		2018		2019	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q		
Major Currency Index	93.3	89.6	90.3	93.7	94.4	93.0	88.3	88.9	86.5	86.5	86.5	86.4	86.4	86.3		
Real GDP	0.6	2.2	2.8	1.8	1.2	3.1	3.2	2.6	2.7	3.0	2.9	2.7	2.5	2.4		
GDP Price Index	0.3	2.4	1.4	2.0	2.0	1.0	2.1	2.4	2.1	2.0	2.2	2.1	2.2	2.2		
Consumer Price Index	0.1	2.3	1.8	3.0	3.1	-0.3	2.0	3.7	3.0	2.0	2.3	2.1	2.3	2.3		

¹ Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonalized annual rates of change. Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H-15, AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and 15+ years' yield to maturity, State and local bond yields from Bank of America Merrill Lynch, A-rated, yield to maturity. Mortgage rates from Freddie Mac, 30-year fixed. LIBOR quotes from Intercontinental Exchange. All interest rate data is sourced from either Analytics. Historical data for the Major Currency Index is from FRSR H-15. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis. Historical data for the Consumer Price Index (CPI) history is from the Department of Labor Bureau of Labor Statistics (BLS).



Office of Regulatory Staff Value Line

Carolina Water Service, Inc.
Docket No. 2017-292-WS

AMER. STATES WATER

NYSE-AWR

RECENT PRICE **56.40**

P/E RATIO **32.0** (Trading: 30.8 Median: 20.0)

RELATIVE P/E RATIO **1.56**

DIV YLD **1.9%**

VALUE LINE

TIMELINESS 2 Raised 12/1/17

SAFETY 2 Raised 7/20/12

TECHNICAL 2 Raised 12/28/17

BETA 60 100 = Market

2020-22 PROJECTIONS

Price	Gain	Ann'l Total
High	ES	Return
Low	40	(-30%)
80		
75		
70		
65		
60		
55		
50		
45		
40		
35		
30		
25		
20		
15		
10		
5		
0		

LEGENDS
 - 125 x Dividends per share divided by Interest Rate
 - Relative Price Strength
 - 240-1 split 9/13
 - Options Yes
 - Shaded area indicates recession

Target Price Range
2020 2021 2022

80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0

Year	2001	2002	2003	2004	2006	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenues per sh	6.53	6.89	6.99	6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.40	12.65	12.85	13.95
"Cashflow" per sh	1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.85	3.05	3.05	3.85
Earnings per sh	0.67	0.87	0.39	0.53	0.66	0.87	0.81	0.78	0.8	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.85	1.85	1.85	2.35
Div'd Decl'd per sh	0.43	0.44	0.44	0.44	0.45	0.46	0.48	0.50	0.51	0.52	0.55	0.64	0.76	0.83	0.87	0.91	0.99	1.06	1.06	1.35
Cap'l Spn per sh	1.59	1.34	1.88	2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.15	1.77	2.52	1.89	2.39	3.55	3.15	3.73	3.73	5.60
Book Value per sh	6.61	7.02	6.98	7.51	7.86	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.20	14.85	14.85	16.80
Common Shs Outst'g	30.24	30.36	30.42	33.50	33.60	34.70	34.46	34.60	37.06	37.28	37.70	38.33	38.72	38.29	36.50	36.57	36.70	36.80	36.80	37.06
Avg Ann'l P/E Ratio	16.7	18.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.8	26.1	26.1	26.1	21.0
Relation P/E Ratio	0.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.4	1.00	0.97	0.91	0.97	1.06	1.24	1.35	1.27	1.27	1.27	1.30
Avg Ann'l Div'd Yield	3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%	2.0%	2.0%	2.0%	2.6%

CAPITAL STRUCTURE as of 9/30/17

Total Debt \$367.3 mil Due in 6 Yrs \$41.7 mil

LT Debt \$321.0 mil LT Interest \$21.3 mil (38% of Cap'l)

Leases, Uncapitalized: Annual rentals \$2.5 mil

Pension Assets-12/16 \$150.9 mil

Obliq. \$180.4 mil

Pfd Stock None

Common Stock 36 679 175 shs as of 10/1/17

MARKET CAP: \$2.1 billion (Mid Cap)

Current Position	2016	2016	9/30/17
Cash Assets	4.4	4.0	6.7
Accts Receivable	18.9	20.0	29.4
Other	109.4	146.5	110.6
Current Assets	132.7	166.9	146.7
Accts Payable	50.6	43.7	53.8
Debt Due	28.3	90.3	46.3
Other	44.6	43.9	51.8
Current Liab.	123.5	177.9	151.9

ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '14-'16 to '20-'22

Revenues	5.5%	3.0%	4.5%
"Cash Flow"	7.9%	6.5%	6.0%
Earnings	10.0%	9.5%	6.5%
Dividends	7.0%	10.5%	7.5%
Book Value	5.5%	5.0%	4.0%

QUARTERLY REVENUES (\$ MIL)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	102.0	115.6	138.3	109.9	465.8
2015	100.9	114.6	133.0	110.1	458.6
2016	93.5	112.0	123.8	106.8	436.1
2017	98.8	113.2	124.4	108.6	445.0
2018	102	118	133	115	470

EARNINGS PER SHARE

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	0.28	0.39	0.54	0.38	1.57
2015	0.32	0.41	0.56	0.31	1.60
2016	0.28	0.45	0.59	0.30	1.62
2017	0.34	0.52	0.57	0.32	1.85
2018	0.39	0.48	0.60	0.38	1.85

QUARTERLY DIVIDENDS PAID

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	0.2025	0.2025	0.213	0.213	0.83
2015	0.213	0.213	0.224	0.224	0.87
2016	0.224	0.224	0.224	0.242	0.91
2017	0.242	0.242	0.255	0.255	0.99
2018					

BUSINESS: American States Water Co operates as a holding company through its principal subsidiary Golden State Water Company, it supplies water to 261,000 customers in 75 cities and 10 counties. Service areas include the greater metropolitan areas of Los Angeles and Orange Counties. The company also provides electric utility services to 23,940 customers in the city of Big Bear Lake and in areas of San Bernardino County. Sold Chaparral City Water of Arizona (6/11) Has 736 employees BlackRock, Inc owns 11.7% of out shares Vanguard, 9.5% of & dr 1.5% 4/17 Proxy Chairman: Lloyd Ross President & Chief Executive Officer Robert J Sprows inc CA Address: 630 East Foothill Blvd San Dimas, CA 91773 Tel: 909-394-3600. internet: www.aswater.com

American States Water has solid earnings prospects. We estimate that the water utility earned \$1.85 per share in 2017, thanks, in part, to an unusual gain resulting from the sale of certain assets. Even without this windfall, however, the company would still have likely recorded a 6% increase in its share net to reach \$1.85 once again in 2018. Our earnings forecasts are based upon constructive regulatory treatment. As is the protocol in California a utility petitions state authorities for rate relief every three years. The company's Golden Gate Water subsidiary filed a general case in July of last year. The application is for the years 2019, 2020, and 2021. A final decision is expected by the end of 2018. The California Public Utility Commission has been reasonable in the past, as it has worked with utilities that have had to spend heavily to upgrade antiquated pipeline systems as well as successfully get customers to reduce consumption because of droughts. The nonregulated business provides opportunity for growth. No matter how efficiently a utility is run, its profitability is limited to what state regulators allow. Through its ASUS business, which represents about 20% of net income, the company has been involved in taking over the management of water systems of major U.S. military installation. ASUS has already signed several 50 year contracts and we expect to see more agreements reached in the coming years as privatization in this sector increases. Timely shares of American States have been doing well, of late. Since our last report three months ago, AWR has increased over 10%. By comparison, the S&P 500 has risen only about 6%. Typically, water stocks have been defensive investments for those seeking income. This pattern has changed, possibly due to the limited amount of shares available in the large-cap sector of the water industry. In deed AWR is now trading above our projected 2020-2022 Target Price Range. Also, potential interest rate hikes by the Federal Reserve may now make this group less suitable for conservative accounts.

James A. Flood
January 12, 2018

(A) Primary earnings Excludes nonrecurring gains/losses '04, '06, '05, '13, '05, '06, '08, '14, '10 (23¢), '11, '10 Next earnings report due early February

(B) Dividends historically paid in early March, June, September, and December = Div'd reinvestment plan available

(C) In millions, adjusted for split

Company's Financial Strength A

Stock's Price Stability 75

Price Growth Persistence 85

Earnings Predictability 75

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Value Line

Carolina Water Service, Inc.

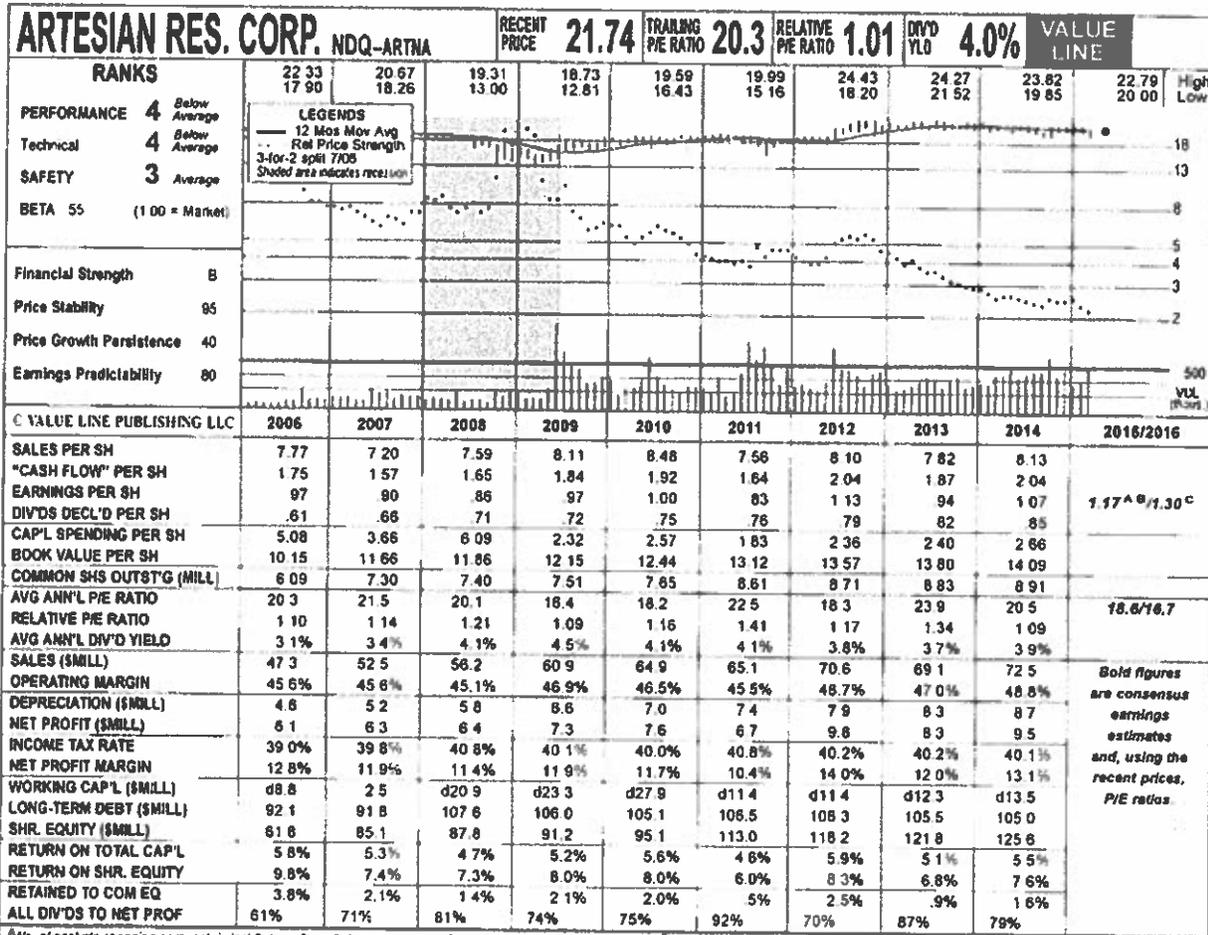
Docket No. 2017-292-WS

AMERICAN WATER NYSE-AWK										RECENT PRICE	89.08	P/E RATIO	28.1 (Trailing: 30.2 Median: NMF)	RELATIVE P/E RATIO	1.37	DIV YLD	2.0%	VALUE LINE																																																	
TIMELINESS 2 Rased 11/17/17	SAFETY 3 New 7/25/08	TECHNICAL 3 Lowered 11/2/18	BETA 85 (+0.00 Market)	2020-22 PROJECTIONS	Insider Decisions	Institutional Decisions	2001-2022	2007-2022	2013-2022	2018-2022	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001																																							
High 23.7		Low 16.5		High 23.0		Low 16.2		High 25.8		Low 19.4		High 32.8		Low 25.2		High 39.4		Low 31.3		High 45.1		Low 37.0		High 56.2		Low 41.1		High 61.2		Low 48.4		High 85.2		Low 58.9		High 92.4		Low 70.0																													
Target Price Range 2020		2021		2022		128		80		64		48		32		24		16		12		12		12		12		12		12		12		12		12																															
LEGENDS		0.85 = Dividends p sh		divided by Interest Rate		Relative Price Strength		Options Yes		Shaded area indicates recession																																																									
Price		Gain		Ann'l Total		Return		High		Low		High		Low		High		Low		High		Low		High		Low		High		Low		High		Low																																	
M A N J J A S O N		to Buy		Options		to Sell		10/20/17		10/20/17		10/20/17		Percent		21		14		7																																															
2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020																													
13.08		14.81		13.98		15.49		15.98		16.25		16.28		16.78		17.72		18.54		18.95		20.10		20.10		20.10		20.10		20.10		20.10		20.10		20.10																															
4.47		2.87		2.89		3.56		3.73		4.27		4.36		4.75		5.13		5.28		5.80		8.20		8.20		8.20		8.20		8.20		8.20		8.20		8.20																															
62.14		1.10		1.25		1.53		1.72		2.11		2.06		2.39		2.84		2.62		3.00		3.30		3.30		3.30		3.30		3.30		3.30		3.30		3.30																															
40		82		86		90		1.21		.84		1.21		1.33		1.47		1.62		1.78		1.78		1.78		1.78		1.78		1.78		1.78		1.78		1.78																															
4.74		6.31		4.50		4.38		5.27		5.25		5.50		5.33		6.51		7.36		7.20		7.25		7.25		7.25		7.25		7.25		7.25		7.25		7.25																															
23.86		28.39		25.64		22.91		23.59		24.11		25.11		26.52		27.39		28.25		29.24		30.90		32.40		32.40		32.40		32.40		32.40		32.40		32.40																															
160.00		160.00		174.63		175.00		175.86		176.59		178.25		179.46		178.28		178.10		178.30		179.00		179.00		179.00		179.00		179.00		179.00		179.00		179.00																															
18.9		15.6		14.6		16.8		18.7		19.9		20.0		20.5		27.7		28.7		28.7		28.7		28.7		28.7		28.7		28.7		28.7		28.7		28.7																															
1.14		1.04		.93		1.05		1.06		1.12		1.05		1.03		1.46		1.31		1.31		1.31		1.31		1.31		1.31		1.31		1.31		1.31		1.31																															
1.9%		4.2%		3.8%		3.1%		3.4%		2.0%		2.5%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%		2.0%																															
2214.2		2338.9		2440.7		2710.7		2666.2		2876.9		2901.9		3011.3		3159.0		3302.0		3380		3600		3600		3600		3600		3600		3600		3600		3600																															
4242.3		187.2		209.9		267.8		304.9		374.3		369.3		429.8		478.0		468.0		535		590		590		590		590		590		590		590		590																															
37.4%		37.9%		40.4%		39.5%		40.7%		39.1%		39.4%		39.1%		39.2%		40.0%		21.0%		21.0%		21.0%		21.0%		21.0%		21.0%		21.0%		21.0%		21.0%																															
50.9%		53.1%		56.9%		56.8%		55.7%		53.9%		52.4%		52.4%		53.7%		52.4%		52.5%		53.0%		53.0%		53.0%		53.0%		53.0%		53.0%		53.0%		53.0%																															
49.1%		46.9%		43.1%		43.2%		44.2%		46.1%		47.6%		47.4%		46.2%		47.5%		46.5%		45.0%		45.0%		45.0%		45.0%		45.0%		45.0%		45.0%		45.0%																															
9245.7		8750.2		9289.0		9581.3		9580.3		9635.5		9940.7		10364		10911		10967		11600		12850		12850		12850		12850		12850		12850		12850		12850																															
9318.0		9991.8		10524		11059		11021		11739		12391		12900		13933		14992		15673		16400		16400		16400		16400		16400		16400		16400		16400																															
NMF		3.7%		3.8%		4.4%		4.6%		5.4%		5.1%		5.5%		5.7%		5.6%		6.0%		6.0%		6.0%		6.0%		6.0%		6.0%		6.0%		6.0%																																	
NMF		4.6%		5.2%		6.5%		7.2%		8.4%		7.8%		8.7%		9.4%		9.0%		9.5%		10.0%		10.0%		10.0%		10.0%		10.0%		10.0%		10.0%																																	
NMF		4.6%		5.2%		6.5%		7.2%		8.4%		7.8%		8.7%		9.4%		9.0%		9.5%		10.0%		10.0%		10.0%		10.0%		10.0%		10.0%		10.0%																																	
NMF		3.0%		1.8%		2.8%		3.5%		3.6%		4.7%		4.3%		4.7%		4.0%		4.5%		4.5%		4.5%		4.5%		4.5%		4.5%		4.5%		4.5%																																	
34%		65%		56%		52%		57%		40%		40%		50%		50%		57%		57%		57%		57%		57%		57%		57%		57%		57%																																	
BUSINESS		American Water Works Company, Inc. is the largest		investor-owned water and wastewater utility in the U.S., providing		services to over 15 million people in over 47 states and Canada		(Regulated presence in 16 states) Nonregulated business assists		municipalities and military bases with the maintenance and upkeep		as well. Regulated operations made up 86.5% of 2016 revenues.		New Jersey is its largest market accounting for 25.4% of regulated		revenues. Has 6,800 employees. The Vanguard Group owns 9.6%		of outstanding shares. BlackRock, Inc. 8.2% officers & directors		less than 10% (3/17 Proxy). President & CEO Susan N. Story		Chair George MacKenzie Address 1025 Laure Oak Road, Voor-		hies, NJ 08043 Tel. 856-346-6200. nfmnl www.amwater.com																																											
ANNUAL RATES		Past		Past		Est'd '14-'16		of change (per sh)		10 Yrs.		\$ Yrs.		to '20-'22		Revenues		3.0%		3.5%		4.5%		"Cash Flow"		23.0%		8.5%		6.5%		Earnings		11.0%		8.5%		Dividends		9.0%		10.0%		Book Value		1.5%		4.0%		5.5%																	
Cal-endar		QUARTERLY REVENUES (\$ mil.)		Full		Year		2014		679.0		754.8		846.1		731.4		3011.3		2015		698.0		782.0		896.0		783.0		3159.0		2016		743.0		827.0		930.0		802.0		3302.0		2017		758.0		844.0		936.0		844		3380		2018		770		895		1040		895		3600	
Cal-endar		EARNINGS PER SHARE ^		Full		Year		2014		.39		.62		.86		.52		2.39		2015		.44		.68		.96		.56		2.64		2016		.46		.77		.83		.57		2.62		2017		.52		.73		1.13		.62		3.00		2018		.58		.84		1.19		.89		3.30	
Cal-endar		QUARTERLY DIVIDENDS PAID ^		Full		Year		2014		.28		.31		.31		.31		1.21		2015		.31		.34		.34		.34		1.33		2016		.34		.375		.375		.375		1.47		2017		.375		.415		.415		1.62		2018													
(A) Diluted earnings		Excludes nonrecurring		losses: '08 \$4.62; '09 \$2.63; '11, \$0.07. Dis-		continued operations '06 (\$0.04); '11, \$0.03; '12, (\$0.10); '13, (\$0.01) GAAP used as of		2014. Next earnings report due mid-February.		Quarterly earnings do not sum in '16 due to		rounding (B) Dividends paid in March, June		September, and December. ^ Div. reinvest-		ment available (C) in millions. (D) Includes in-		tangibles On 9/30/17: \$1.373 billion,		\$7.70/share (E) Pro forma numbers for '06 &		Company's Financial Strength		B+		Stock's Price Stability		100		Price Growth Persistence		85		Earnings Predictability		90		To subscribe call 1.800.VALUeline																													
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AQUA AMERICA NYSE-WTR										RECENT PRICE	38.65	P/E RATIO	27.4	(Trading: 28.1 Median: 27.8)	RELATIVE P/E RATIO	1.34	DIVD YLD	2.2%	VALUE LINE													
TRMELINESS 2 Raised 11/17/17 SAFETY 2 Raised 4/20/12 TECHNICAL 3 Lowered 1/5/18 BETA 75 (1.00 = Market)		High 23.8 Low 18.1 21.3 15.1 17.8 9.8 17.2 12.3 18.4 13.2 19.0 15.4 21.5 16.8 28.1 20.6 28.2 22.4 31.1 24.4 35.8 28.0 39.6 29.4		LEGENDS 1 50 = Dividends p sh divided by Interest Rate Relative Price Strength 4-to-3 split 12/05 5-to-4 split 9/13 Options Yes Shaded area indicates recession												Target Price Range 2020 2021 2022 80 60 40 20 10 7.5																
2020-22 PROJECTIONS Price Gain Ann'l Total High 45 (+18%) 6% 9% Low 35 (-10%) N/A										Insider Decisions M A M J J A S O N to Buy 0 0 0 0 0 0 0 0 0 0 Options 7 7 0 1 7 0 1 8 0 to Sell 0 0 0 2 0 0 1 0 1										Institutional Decisions 10/2017 2/2017 3/2017 to Buy 179 172 187 to Sell 190 153 120 Net Buy 103594 104564 105796 Percent shares traded 10 15 10										% TOT. RETURN 12/17 1 yr 33.8 3 yr 58.1 5 yr 118.0		
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	* VALUE LINE PUB. LLC		20-22												
2.16	2.28	2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	4.50	4.70	Revenues per sh		6.05												
69	76	77	87	97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.62	1.89	1.87	2.07	2.15	2.25	"Cash Flow" per sh		2.73												
41	.43	.48	.51	57	56	57	58	62	72	83	87	1.16	1.20	1.14	1.32	1.36	1.45	Earnings per sh A		1.83												
24	26	28	29	32	35	38	41	44	47	50	54	58	63	69	74	79	83	Div'd Decl'd per sh B		1.15												
87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	2.25	2.45	Cap'l Spending per sh		2.25												
332	3.49	4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	11.10	11.75	Book Value per sh		14.85												
142.47	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.65	175.43	177.93	178.59	176.54	177.39	178.00	178.30	Common Shs Outst'g C		180.00												
23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	24.5	24.5	Avg Ann'l P/E Ratio		21.0												
1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.10	1.26	1.20	1.20	Relative P/E Ratio		1.30												
2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%	2.4%	2.4%	Avg Ann'l Div'd Yield		2.9%												
CAPITAL STRUCTURE as of 9/30/17 Total Debt \$2058.2 mil Due in 6 Yrs \$430.5 mil. LT Debt \$1952.5 mil LT Interest \$80.0 mil. (50% of Cap)										802.5 627.0 670.5 728.1 712.0 757.8 768.6 779.9 814.2 819.9 800 840 95.0 97.9 104.4 124.0 144.8 153.1 205.0 213.9 201.8 234.2 245 280 38.9% 39.7% 39.4% 39.2% 32.9% 39.0% 10.0% 10.5% 6.9% 8.2% 9.0% 9.0% 55.4% 54.1% 55.6% 56.6% 52.7% 52.7% 48.9% 48.5% 50.3% 48.4% 47.0% 49.0% 44.6% 45.9% 44.4% 43.4% 47.3% 47.3% 51.1% 51.5% 49.7% 51.6% 53.0% 51.0% 2191.4 2306.6 2495.5 2706.2 2646.8 2929.7 3003.6 3216.0 3469.5 3587.7 3735 4180 2792.8 2997.4 3227.3 3489.3 3612.9 3936.2 4167.3 4402.0 4688.9 5001.6 5080 5275 5.9% 5.7% 5.6% 5.9% 6.9% 6.6% 8.0% 7.8% 6.9% 7.8% 7.5% 7.5% 9.7% 9.3% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 12.7% 12.5% 12.5% 9.7% 9.3% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 12.7% 12.5% 12.5% 3.2% 2.6% 2.7% 3.7% 4.6% 4.3% 6.7% 6.1% 4.7% 5.6% 5.5% 5.0% 67% 70% 72% 65% 60% 61% 50% 52% 60% 56% 58% 59%										Revenues (\$mil) 1085 Net Profit (\$mil) 333 Income Tax Rate 16.0% AFUDC % to Net Profit 3.5% Long-Term Debt/Ratio 57.0% Common Equity Ratio 49.0% Total Capital (\$mil) 5500 Net Plant (\$mil) 5800 Return on Total Cap'l 7.5% Return on Sbr. Equity 12.8% Return on Com. Equity 12.5% Retained to Com Eq 4.5% All Div'ds to Net Prof 82%												
Pension Assets-12/16 \$242.4 mil Oblig. \$308.2 mil										Prd Stock None Common Stock 177,690,598 shares as of 10/20/17										MARKET CAP: \$6.9 billion (Large Cap) CURRENT POSITION 2015 2016 9/30/17 Cash Assets 3.2 3.7 4.1 Receivables 99.1 97.4 104.9 Inventory (AvgCat) 12.4 13.0 16.6 Other 13.7 14.6 12.7 Current Assets 128.4 128.7 138.3 Accs Payable 58.5 59.9 63.4 Debt Due 52.3 157.2 105.7 Other 84.4 84.4 83.9 Current Liab 193.2 301.5 253.0												
ANNUAL RATES Past 10 Yrs Past 5 Yrs Est'd '14-'16 to '20-'22 Revenues 4.0% 2.0% 5.0% "Cash Flow" 7.5% 7.0% 6.0% Earnings 8.5% 11.0% 7.0% Dividends 8.0% 8.0% 9.0% Book Value 7.0% 7.5% 6.5%										Our earnings estimates for Aqua America remain unchanged. But we have lowered our revenue forecast for both last year's fourth quarter and 2018 as water sales have been declining. On the positive side, the water utility's operating expenses have been decreasing at a higher rate thanks to lower power and chemical costs. Indeed, we think Aqua's 2017 share net came in at \$1.36, versus 2016's tough \$1.32 comparison. Rate relief granted by several states over the past 12 months will be in effect all of this year. This, plus expected new hikes in Virginia and Indiana, should enable Aqua's share earning to climb a healthy 7% to \$1.45. Acquisitions are being made at a modest pace. Due to the fragmentation in the market (there are over 100,000 separate water districts in the U.S.), large-cap water utilities such as Aqua are continuously buying small water entities. Also, most of these authorities do not have the funds required to replace and upgrade their aging network of pipes and waste systems. Not only do the bigger water entities have the funds available for the needed capital outlays, they are also able										16% industrial, wastewater & other 25% Off & dr own less than 1% of the common stock. Vanguard Group 8.9% Blackrock Inc. 8.1% State Street Capital, 6.0% (3/17 Proxy) President & Chief Executive Officer Christopher Franklin Incorporated Pennsylvania Address 782 West Lancaster Avenue Bryn Mawr, Pennsylvania 19010. Tel. 610-525-1400 Internet www.aquamca.com												
to realize significant cost saving because the industry is rife with redundancies. The company's acquisitions made through September of last year combined with organic growth, led to only a 0.8% increase in the customer base. Management has targeted annual growth to be approximately 1.5%-2.0%, so we expect the pace to possible accelerate here.										Aqua has a healthy balance sheet. Of the nine members in this group, only two merit an "A" Financial Strength rating. This leaves the company with the capacity to borrow to buy more water assets. In addition, Aqua's policy of hardly issuing any new equity is a real positive. With the stock near its all-time high, a new equity offering would probably be well received, as institutional demand for large-cap water utilities stock remains strong. These shares are timely. Also, even though WTR's long term total return potential isn't great, it is more attractive than most other mid and large-cap stocks in this group. So, investors that must own a water utility equity may find WTR of interest.																						
James A. Flood										January 12, 2018																						
(A) Diluted eps. Excl. nonrec. gains '01, '24; '02, '46 '03 '36; '12 '18; Excl. gain from disc operations. '12, '16; '13, '14, '11; May not sum due to rounding. Next earnings report due mid-February.										(B) Dividends historically paid in early March, June, Sept. & Dec = Div'd reinvestment plan available (5% discount).										(C) In millions, adjusted for stock splits.												
Company's Financial Strength A Stock's Price Stability 95 Price Growth Persistence 65 Earnings Predictability 90										To subscribe call 1-800-VALUELINE																						

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^ANo. of analysts changing earn. est. in last 3 days 0 up, 0 down, consensus 5-year earnings growth not available. ^BBased upon 2 analysts' estimates. ^CBased upon one analyst's estimate.

ANNUAL RATES				
of change (per share)	6 Yrs.	1 Yr.		
Sales	1.0%	4.0%		
"Cash Flow"	3.5%	9.0%		
Earnings	3.0%	14.0%		
Dividends	3.5%	3.0%		
Book Value	3.0%	2.0%		

Fiscal Year	QUARTERLY SALES (\$mill.)	Full Year
	1Q 2Q 3Q 4Q	
12/31/12	16.7 17.9 19.0 17.0	70.8
12/31/13	16.3 17.8 18.1 16.9	69.1
12/31/14	16.9 17.9 19.6 18.1	72.5
12/31/15		

Fiscal Year	EARNINGS PER SHARE	Full Year
	1Q 2Q 3Q 4Q	
12/31/11	.14 .23 26 20	.83
12/31/12	.28 .32 .33 20	1.13
12/31/13	.20 .28 29 .17	.94
12/31/14	.24 .22 .37 24	1.07
12/31/15		

Cal-endar	QUARTERLY DIVIDENDS PAID	Full Year
	1Q 2Q 3Q 4Q	
2012	.193 .198 .198 .203	.79
2013	.203 .206 .206 .209	.82
2014	.209 .212 .212 .215	.85
2015	.215	

INSTITUTIONAL DECISIONS			
	2Q'14	3Q'14	4Q'14
to Buy	36	27	30
to Sell	20	33	28
Hld's(000)	3132	2968	3004

INDUSTRY: Water Utility

BUSINESS: Artesian Resources Corporation, through its subsidiaries, provides water, wastewater, and other services on the Delmarva Peninsula. It distributes and sells water to residential, commercial, industrial, municipal, and utility customers in Delaware, Maryland, and Pennsylvania. The company also offers water for public and private fire protection to customers in its service territories. In addition, it provides contract water and wastewater services, water and sewer service line protection plans, and wastewater management services, as well as design, construction, and engineering services. As of December 31, 2014, the company served approximately 80,600 metered water customers through 1,201 miles of transmission and distribution mains. Artesian Water Company, the company's principal subsidiary, is the oldest and largest investor-owned public utility on the Delmarva Peninsula, and has been providing water service since 1905. Artesian supplies over 7.3 billion gallons of water per year. Has 237 employees. Chairman, C.E.O. & President, Dian C. Taylor. Address: 664 Churchmans Rd., Newark, DE 19702. Tel: (302) 453-6900. Internet: <http://www.artesianwater.com>

April 17, 2015

TOTAL SHAREHOLDER RETURN
 Dividends plus appreciation as of 3/31/2015

	3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
	-4.37%	8.32%	-0.94%	27.67%	47.18%

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Value Line
Carolina Water Service, Inc.
Docket No. 2017-292-WS

ARTESIAN RES. CORP. NDQ-ARTNA		RECENT PRICE	37.31	TRAILING P/E RATIO	26.5	RELATIVE P/E RATIO	1.22	DIV'D YLD	2.5%	VALUE LINE	
RANKS		18 73 12 81	19 99 16 43	19 99 15 16	24 43 18 20	24 27 21 52	23 82 19 85	29 16 20 00	35 00 25 17	43 22 29 37	High Low
PERFORMANCE	3 Average										45
Technical	3 Average										30
SAFETY	3 Average										22.5
BETA	65 (100 = Market)										13
Financial Strength	B										9
Price Stability	65										6
Price Growth Persistence	40										4
Earnings Predictability	75										3
VALUE LINE PUBLISHING LLC	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018/2019	
SALES PER SH	8.11	8.48	7.56	8.10	7.82	8.13	8.50	8.67	--	--	
"CASH FLOW" PER SH	1.84	1.92	1.64	2.04	1.87	2.04	2.22	2.43	--	--	
EARNINGS PER SH	97	100	83	113	94	107	126	141	NA	NANA	
DIV'D DECL'D PER SH	72	75	76	79	82	85	87	90	--	--	
CAP'L SPENDING PER SH	2.32	2.57	1.83	2.36	2.40	2.66	2.28	3.10	--	--	
BOOK VALUE PER SH	12.15	12.44	13.12	13.57	13.80	14.09	14.81	15.23	--	--	
COMMON SHS OUTST'G (MILL)	7.51	7.65	8.61	8.71	8.83	8.91	9.06	9.13	--	--	
AVG ANNL P/E RATIO	16.4	18.2	22.5	18.3	23.9	20.5	18.0	20.9	NA	NANA	
RELATIVE P/E RATIO	1.09	1.16	1.41	1.17	1.34	1.08	0.93	1.14	--	--	
AVG ANNL DIV'D YIELD	4.5%	4.1%	4.1%	3.8%	3.7%	3.9%	3.8%	3.1%	--	--	
SALES (\$MILL)	60.9	64.0	65.1	70.6	69.1	72.5	77.0	79.1	--	--	
OPERATING MARGIN	46.9%	46.5%	45.5%	45.5%	47.0%	46.8%	43.0%	44.4%	--	--	
DEPRECIATION (\$MILL)	8.6	7.0	7.4	7.9	8.3	8.7	8.8	9.2	--	--	
NET PROFIT (\$MILL)	7.3	7.6	6.7	9.8	8.3	9.5	11.3	13.0	--	--	
INCOME TAX RATE	40.1%	40.0%	40.8%	40.8%	40.2%	40.1%	--	--	--	--	
NET PROFIT MARGIN	11.9%	11.7%	10.4%	14.0%	12.0%	13.1%	14.7%	16.4%	--	--	
WORKING CAP'L (\$MILL)	d23.3	d27.9	d11.4	d11.4	d12.3	d13.5	d8.8	d4.7	--	--	
LONG-TERM DEBT (\$MILL)	106.0	105.1	106.5	106.3	105.5	103.6	103.6	102.3	--	--	
SHR. EQUITY (\$MILL)	91.2	95.1	113.0	118.2	121.8	125.6	132.3	139.0	--	--	
RETURN ON TOTAL CAP'L	5.2%	5.6%	4.6%	5.9%	5.1%	5.5%	6.3%	6.7%	--	--	
RETURN ON SHR. EQUITY	8.0%	8.0%	6.0%	8.3%	6.8%	7.6%	8.5%	9.3%	--	--	
RETAINED TO COM EQ	2.1%	2.0%	5%	2.5%	9%	1.6%	2.6%	3.4%	--	--	
ALL DIV'D TO NET PROF	74%	75%	92%	70%	87%	79%	69%	63%	--	--	

Note: No analyst estimates available.

ANNUAL RATES			
of change (per share)	5 Yrs.	1 Yr.	
Sales	1.0%	2.0%	
Cash Flow	4.5%	9.0%	
Earnings	6.0%	12.0%	
Dividends	3.0%	3.0%	
Book Value	3.0%	4.5%	

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/15	18.0	19.5	20.8	18.7	77.0
12/31/16	18.5	19.4	21.8	19.4	79.1
12/31/17	19.2	20.5	22.4		
12/31/18					

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/14	.24	.22	.37	.24	1.07
12/31/15	.28	.36	.41	.21	1.26
12/31/16	.30	.33	.48	.30	1.41
12/31/17	.34	.35	.42		
12/31/18					

Cal-endar	1Q	2Q	3Q	4Q	Full Year
2015	215	218	218	222	87
2016	222	225	225	228	90
2017	226	232	232	235	93
2018					

ASSETS (\$mill.)			
Cash Assets	2015	2016	9/30/17
Receivables	8.4	7.8	7.2
Inventory	1.7	1.8	1.4
Other	6.1	5.0	7.5
Current Assets	14.4	14.6	16.4

LIABILITIES (\$mill.)			
Accts Payable	5.5	5.6	7.1
Debt Due	11.8	8.4	7.6
Other	5.9	5.3	8.5
Current Liab	23.2	19.3	23.2

LONG-TERM DEBT AND EQUITY as of 9/30/17			
Total Debt \$113.5 mil.	Due in 6 Yrs. NA		
LT Debt \$105.9 mil.	(42% of Cap)		
Including Cap. Leases NA	Lessee, Uncapitalized Annual rentals NA		
Pension Liability \$1.0 mil. in '16 vs. \$1.1 mil. in '15	Pfd Stock None		
	Pfd Div'd Paid None		
Common Stock 9,193,000 shares	(58% of Cap)		

INDUSTRY: Water Utility

BUSINESS: Artesian Resources Corp. operates as a holding company of wholly owned subsidiaries offering water, wastewater services, and related services on the Delmarva Peninsula. Its Water Division (Artesian Water, Artesian Water Maryland, and Artesian Water Pennsylvania) provide water service to residential, commercial, industrial, governmental, municipal, and utility customers. For the nine months ended September 30, 2017, approximately 5.8 billion gallons of water were distributed in its Delaware systems and approximately 98.6 million gallons of water were distributed in its Maryland systems. Artesian Wastewater owns wastewater infrastructure in Delaware and Artesian Wastewater Maryland provides regulated wastewater services in Maryland. The number of Delaware wastewater customers totaled 1,685 as of June 30, 2017. Artesian Utility (non-regulated division) provides contract water and wastewater operation services to private, municipal, and governmental institutions. Has 225 employees. Chairman, C.E.O. & President: Dian C. Taylor. Address: 664 Churchmans Rd., Newark, DE 19702. Tel.: (302) 453-6900. Internet: www.artesianwater.com. J.I.

January 12, 2018

TOTAL SHAREHOLDER RETURN				
Dividends plus appreciation as of 12/31/2017				
3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
2.64%	3.72%	23.94%	87.92%	104.13%

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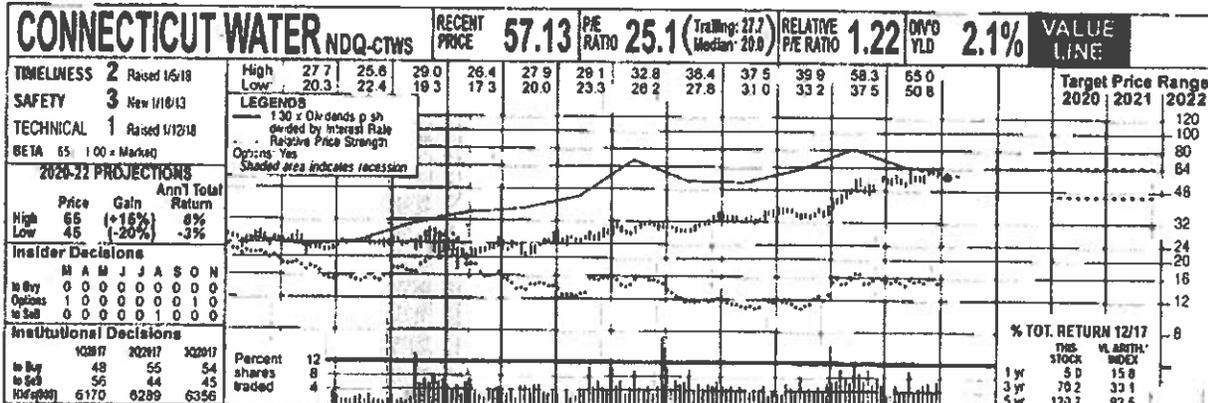
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CALIFORNIA WATER NYSE-CWT				RECENT PRICE	PIE RATIO	Trailing: 31.5 Median: 20.0	RELATIVE PIE RATIO	DIVD YLD	VALUE LINE										
TIMELINESS	2	Raised 9/1/17	High	44.70	30.0	31.5	1.46	1.6%	Target Price Range										
SAFETY	3	Lowered 7/27/07	Low	22.9	16.4	17.1	23.3	24.1	18.8	19.4	19.3	23.4	26.4	26.0	36.8	46.2	2020	2021	2022
TECHNICAL	2	Raised 12/22/17	LEGENDS 1 33 a Dividends p sh 2 Divided by Interest Rate 3 Relative Price Strength 4 For-1 split 5/11 5 Shaded area indicates recession																
BEA	80	(1100 + Market)	2020-22 PROJECTIONS Price Gain Ann'l Total High 50 (+10%) 5% Low 35 (-20%) -4%																
Insider Decisions			Institutional Decisions																
CAPITAL STRUCTURE as of 9/30/17			MARKET CAP: \$2.1 billion (Mid Cap)																
CURRENT POSITION (MILL)			ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '14-'16 to '20-'22																
QUARTERLY REVENUES (\$ MILL)			QUARTERLY DIVIDENDS PAID																
QUARTERLY EARNINGS PER SHARE			BUSINESS: California Water Service Group provides regulated and nonregulated water service to 482,400 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired Rio Grande Corp West Hawaii Utilities (9/08) Revenue breakdown, '16 residential, 72% business 20% industrial 4% public authorities, 3% other 1% Off and dir own 1% of common stock (4/17 proxy). Has 1,163 employees Pres and CEO Martin A. Kopolnick Inc: DE, Addr 1720 North First St San Jose CA 95112-4598 Tel: 408-367-8200. Internet: www.calwatergroup.com																
ANNUAL RATES Past 10 Yrs. Past 5 Yrs. Est'd '14-'16 to '20-'22			California Water Service Group stock is trading around recently established all-time highs. The regulated water utility wrapped up 2017 by surging through the \$45-per-share price threshold on more than one occasion, with shares rising 33% on the year. Since our previous review, the equity is up more than 10% in value. Indeed, the investment community has handsomely rewarded the company for delivering consistent top and bottom-line growth, quarter to quarter. However, fourth-quarter share net may slip by two cents. For 2018, our ranking system suggests another strong performance may be in store, as CWT shares are poised to outpace the year-ahead broader market averages (Timeliness: 2). We think the positives will continue to outweigh the negatives here. California Water Service is enjoying the fruits of recent rate increases by the California regulatory authority. In fact, the decision has added more than \$30 million in incremental revenues so far. In addition, favorable changes to the corporate tax rate should help lift profits this year. To address the latter, the company's operating expenses are still on the rise, despite some progress in the second quarter. Water costs (only investment upgrades can be recouped) from greater customer usage, as well as periodic increases in wholesale supplier rates, are pushing expenses higher. Overall, we are adding \$10 million and \$0.10 to our 2018 revenue and earnings estimates, to \$685 million and \$1.55 a share, respectively. Aggressive infrastructure spending remains on tap through next decade. As previously noted, California has close to \$500 million left on its investment budget, and has earmarked the funds for upgrades to its aging infrastructure and water systems. On top of that, these improvements are likely to be accompanied by bolt-on acquisitions. This issue is best suited for short-term accounts. On the other hand, CWT shares have been on a multiyear price ascent and, as a result, total return potential 3 to 5 years out is unappealing. Thus we think investors with a longer term holding period can find more attractive options elsewhere, at this time.																
QUARTERLY REVENUES (\$ MILL)			Nicholas P. Patrikis January 12, 2018																
QUARTERLY EARNINGS PER SHARE			Company's Financial Strength B+ Stock's Price Stability 80 Price Growth Persistence 35 Earnings Predictability 65																
QUARTERLY DIVIDENDS PAID			To subscribe call 1-800-VALU LINE																

(A) Basic EPS. Excl nonrecurring gain (loss). '01, '02, '04, '11, '14. Next earnings report due late February.
(B) Dividends historically paid in late Feb.

May, Aug, and Nov. = Div'd reinvestment plan available.
(C) Incl. intangible assets. In '16 \$219 mill.
(D) In millions, adjusted for splits
(E) Excludes non-reg rev

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2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	20-22	
5.91	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	6.58	8.77	8.75	9.55	Revenues per sh	12.80
1.78	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	3.35	3.55	"Cash Flow" per sh	4.10
1.13	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.13	1.53	1.86	1.92	2.04	2.08	2.20	2.40	Earnings per sh ^A	2.90
.80	.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	1.18	1.24	Div'd Dec'd per sh ^B	1.46
1.86	1.98	1.49	1.58	1.96	1.95	2.24	2.44	3.28	3.06	2.61	2.79	3.02	4.11	4.28	5.93	4.50	4.35	Cap'l Spending per sh	3.35
9.25	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	24.40	24.50	Book Value per sh ^D	26.80
7.65	7.94	7.97	8.04	8.17	8.27	8.58	8.46	8.57	8.68	8.76	8.65	11.04	11.12	11.19	11.25	12.70	12.25	Common Sns Outstg ^C	12.50
21.5	24.3	23.3	22.9	26.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	23.7	23.7	Avg Ann'l P/E Ratio	18.0
1.10	1.33	1.34	1.21	1.52	1.57	1.22	1.34	1.23	1.32	1.44	1.23	1.03	92	89	122	1.25	1.25	Relative P/E Ratio	1.20
3.3%	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%	2.1%	2.1%	Avg Ann'l Div'd Yield	2.7%

CAPITAL STRUCTURE as of 9/30/17
 Total Debt \$263.2 mil Due in 6 Yrs \$19.8 mil
 LT Debt \$255.2 mil LT Interest \$8.0 mil (47% of Cap'l)

Leases, Uncapitalized: Annual rentals \$ 3 mil
 Pension Assets-12/16 \$82.7 mil
 Oblig. \$79.3 mil

Pfd Stock \$0.8 mil Pfd Divd NMF

Common Stock 12,068,299 shs

MARKET CAP: \$700 million (Small Cap)

CURRENT POSITION (MILL)

2016	2016	9/30/17	
Cash Assets	7	1.6	8.3
Accounts Receivable	11.0	13.0	15.8
Other	15.3	14.8	23.2
Current Assets	27.0	29.4	47.1
Accrs Payable	11.9	13.1	8.0
Debt Due	2.8	4.9	8.0
Other	22.2	37.1	25.2
Current Liab	36.9	55.1	39.8

ANNUAL RATES of change (per sh)

Past 10 Yrs	Past 5 Yrs	Past Est'd '14-'16 to '20-'22	
Revenues	4.0%	3.0%	7.0%
"Cash Flow"	6.5%	9.5%	4.5%
Earnings	8.0%	12.0%	6.5%
Dividends	2.5%	3.0%	5.5%
Book Value	6.0%	9.0%	5.0%

QUARTERLY REVENUES (\$ mil)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	20.3	25.4	27.6	20.7	94.0
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	22.5	27.9	31.8	23.8	108
2018	25.5	30.5	35.0	26.0	117

EARNINGS PER SHARE^A

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.27	.67	.76	.22	1.92
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	.36	.73	.90	.21	2.20
2018	.37	.80	.93	.30	2.40

QUARTERLY DIVIDENDS PAID^B

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975	.2975	.2975	1.18

BUSINESS: Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities) in 2016. 95% of net income was derived from these activities. Provides water services to 440,000 people in 79 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company.

Connecticut Water Service reported third-quarter financial results in line with our expectations. Revenues of \$31.8 million rose 8% year over year, while earnings of \$0.90 per share logged a similar advance. There were several noteworthy highlights during the September period. These consist of the completion and inclusion of the Heritage Village Water and Avon Water acquisitions, which added about 9,500 customers and \$2.4 million to the top line. Moreover, Connecticut finalized a \$30 million water treatment facility upgrade.

The company has received approval to raise its rates. As noted in our previous review, Connecticut Water's subsidiary, The Maine Water Company, filed for a rate hike to recoup about \$5 million in past water system upgrades and associated operating costs. The rate increase (effective as of December 1st) will impact roughly 16,500 customers and lift its annual revenue haul by more than \$1.5 million. Additional hikes are expected down the road. No doubt, infrastructure upgrades are apt to persist over the pull to

January, 2012, Biddeford and Saco Water, December 2012 Heritage Village, February, 2017 Inc. Conn. Has 266 employees Chairman/President/Chief Executive Officer Eric W. Thornburg, Officers and directors own 2.5% of the common stock; BlackRock Inc. 7.2% (4/17 proxy). Address: 93 West Main Street, Clinton, CT 06413 Telephone: (860) 669-8636 internet: www.ctwater.com

next decade, as the push to revamp outdated water pipes and mains continues to be the primary focus for most water utilities. Improvements in water treatment plants are also in the cards. Over the course of this year, we believe CTWS will match its 2017 spending budget, at around \$66 million. As always, to help fund (or recoup) these investments, we expect periodic rate filings to come across the public utilities commission's desk.

We have modestly raised our 2018 top-and-bottom-line estimates. Due to the abovementioned rate approval and wider customer base, we are adding \$2 million and \$0.05 to this year's revenue and earnings forecasts, to \$117 million and \$2.40 a share, respectively. Meanwhile, our financial projections for 2017 are unchanged. This issue ought to appeal primarily to those with a short-term strategy (Timeliness: 2). On the other hand shares of CTWS are already trading well within our 3- to 5-year Target Price Range. Therefore, we recommend longer term accounts wait on the sidelines for a more attractive entry point.

Nicholas P. Patrikis January 12, 2018

(A) Diluted earnings. Next earnings report due late February.
 (B) Dividends historically paid in mid-March, June, September, and December. = Div'd reinvestment plan available
 (C) In millions
 (D) Includes intangibles. In 2016, \$30.4 million/\$2.70 = share

Company's Financial Strength B+
 Stock's Price Stability 90
 Price Growth Persistence 80
 Earnings Predictability 55

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GLOBAL WATER RES. NDQ-GWRS		RECENT PRICE	9.15	TRAILING P/E RATIO	NMF	RELATIVE P/E RATIO	NMF	DIV'D YLD	3.1%	VALUE LINE																																																																																																																																																																																																																																																												
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Note: No analyst estimates available.

ANNUAL RATES					ASSETS (\$mill)			INDUSTRY: Water Utility					
of change (per share)	\$ Yrs.	1 Yr.			2015	2016	9/30/17	BUSINESS: Global Water Resources, Inc. is a water resource management company that owns, operates, and manages water, wastewater, and recycled water utilities in strategically located communities, principally in metropolitan Phoenix, Arizona. It seeks to deploy its integrated approach which it refers to as "Total Water Management," a term the company uses to mean managing the entire water cycle by owning and operating the water, wastewater, and recycled water utilities within the same geographic areas in order to both conserve water and maximize its total economic and social value. Global Water uses Total Water Management to promote sustainable communities in areas where it expects growth to outpace the existing potable water supply. The company currently owns eight water and wastewater utilities in strategically targeted communities in metropolitan Phoenix and serves more than 50,000 people in approximately 19,000 homes within its certificated service areas. Has 43 employees. C.E.O. & President: Ron L. Fleming. Address: 21410 N. 19th Avenue #220, Phoenix, AZ 85027. Tel.: (480) 360-7775. Internet: www.gwresources.com. J.L.					
Sales	--	--			11.5	20.5	7.8				January 12, 2018 TOTAL SHAREHOLDER RETURN <i>Dividends plus appreciation as of 12/31/2017</i> 3 Mos. 6 Mos. 1 Yr. 3 Yrs. 5 Yrs. -0.13% -4.28% 5.74% -- --		
"Cash Flow"	--	--			1.1	1.5	1.6						
Earnings	--	--			.0	0	0						
Dividends	--	--			6.1	2.7	3.3						
Book Value	--	--			18.7	24.7	12.7						
Fiscal Year	QUARTERLY SALES (\$mill)	1Q	2Q	3Q	4Q	Full Year	LIABILITIES (\$mill)	Total Debt \$114.4 mil Due in 5 Yrs. NA LT Debt \$114.4 mil Including Cap. Leases NA (90% of Cap'l) Lessee, Uncapitalized Annual rentals NA Pension Liability None in '16 vs. None in '15 Pfd Stock None Pfd Div'd Paid None Common Stock 19,531,000 shares (10% of Cap'l)					
12/31/15	7.6	9.1	8.2	7.1	32.0	Property Plant & Equip at cost	1.3				1.8	2	
12/31/16	6.8	7.6	8.2	7.2	29.8	Accum Depreciation	2.0				0	0	
12/31/17	6.8	8.1	8.5			Net Property	7.4				9.1	10.3	
12/31/18						Other	10.7				10.9	10.5	
						Total Assets							
Fiscal Year	EARNINGS PER SHARE	1Q	2Q	3Q	4Q	Full Year	LONG-TERM DEBT AND EQUITY as of 9/30/17						
12/31/14	--	--	--	--	--								
12/31/15	--	--	--	--	--								
12/31/16	d.02	d.19	.06	--	d.15								
12/31/17	--	.02	.06										
12/31/18													
Calendar	QUARTERLY DIVIDENDS PAID	1Q	2Q	3Q	4Q	Full Year	INSTITUTIONAL DECISIONS 1Q'17 2Q'17 3Q'17 to Buy 22 29 29 to Sell 17 15 12 H/ds(000) 3998 3686 3678						
2015	--	--	--	--	--								
2016	--	.04	.068	.067	.17								
2017	.067	.068	.069	.07	.27								
2018													

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Carolina Water Service, Inc.

Docket No. 2017-292-WS

MIDDLESEX WATER NDQ-MSEX										RECENT PRICE 39.09		P/E RATIO 25.9 (Trailing: 31.3 Median: 20.0)		RELATIVE P/E RATIO 1.26		DRYD YLD 2.3%		VALUE LINE				
TIMELINESS 4 Lower 7/7/17	SAFETY 2 New 10/21/11	TECHNICAL 1 Rased 1/12/18	BETA 50 100 Market		2018-22 PROJECTIONS												Target Price Range 2020 2021 2022					
2018-22 PROJECTIONS					Price		Gain		Ann'l Total Return													
					High 50		(+30%)		9%													
					Low 36		(-10%)		Nil													
Insider Decisions					Institutional Decisions					% TOT. RETURN 12/17												
M A M J J A S O N					10/2017 20/2017 30/2017					1y 49					VS. AMEX INDEX							
Buy 0 0 0 0 0 0 0 0 0 0					45 60 46					3 yr 67.5					15.6							
Options 0 7 0 0 0 0 0 0 0 0					51 44 41					5 yr 137.0					30.1							
Sell 1 0 0 0 0 0 1 1 1 1					9400 9201 9500										92.5							
					Percent shares traded																	
					12 8 4																	
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018																				VALUE LINE PUB. LLC 20-22		
5.87 5.98 6.12 6.25 6.44 6.16 6.50 6.79 6.75 6.60 6.50 6.98 7.19 7.26 7.77 8.16 8.10 8.55																				Revenues per sh 8.40		
1.18 1.20 1.15 1.28 1.33 1.33 1.49 1.53 1.40 1.55 1.46 1.56 1.72 1.84 1.97 2.17 2.25 2.55																				"Cash Flow" per sh 3.15		
.66 .73 .61 .73 71 82 87 69 72 96 .84 90 103 113 122 138 1.40 1.85																				Earnings per sh A 2.10		
.62 .73 .65 .68 .67 58 69 70 71 72 73 74 75 76 78 81 .86 .91																				Div'd Decl'd per sh B= 1.05		
1.25 1.59 1.87 2.54 2.18 2.31 1.66 2.12 1.49 1.90 1.50 1.36 1.28 1.40 1.59 2.91 1.80 1.30																				Cap'l Spending per sh 2.88		
7.11 7.39 7.60 8.02 8.26 9.52 10.05 10.03 10.33 11.13 11.27 11.48 11.82 12.24 12.74 13.40 13.95 14.65																				Book Value per sh 16.75		
10.17 10.36 10.48 11.36 11.58 13.17 13.25 13.40 13.52 15.57 15.70 15.62 15.96 16.12 16.23 16.30 16.50 16.75																				Common Shs Outst'g C 17.00		
24.6 23.5 30.0 26.4 27.4 22.7 21.6 19.8 21.0 17.8 21.7 20.8 19.7 18.5 19.1 25.6 28.0																				Avg Ann'l P/E Ratio 21.0		
1.26 1.28 1.71 1.39 1.46 1.23 1.15 1.19 1.40 1.13 1.36 1.32 1.11 97 98 1.35 1.37																				Relative P/E Ratio 1.30		
3.8% 3.7% 3.5% 3.4% 3.5% 3.7% 3.7% 4.0% 4.7% 4.2% 4.0% 4.0% 3.7% 3.7% 3.3% 2.3% 2.2%																				Avg Ann'l Div'd Yield 2.5%		
CAPITAL STRUCTURE as of 9/30/17																						
Total Debt \$186.6 mil Due In 5 Yrs \$32.1 mil					86.1 91.0 91.2 102.7 102.1 110.4 114.8 117.1 128.0 132.9 174 143																	
LT Debt \$135.6 mil LT Interest \$6.0 mil					11.8 12.2 10.0 14.3 13.4 14.4 16.6 18.4 20.0 22.7 23.0 27.5																	
(Total interest coverage 10.8x)					32.6% 33.2% 34.1% 32.1% 32.7% 33.9% 34.1% 35.0% 34.5%																	
(38% of Cap'l)					49.0% 45.6% 46.6% 43.1% 42.3% 41.5% 40.4% 40.5% 39.4%																	
Pension Assets-12/16 \$59.4 mil					49.6% 51.8% 52.1% 55.8% 56.6% 57.4% 58.7% 58.8% 59.8%																	
Oblig. \$78.6 mil					268.8 259.4 267.9 310.5 312.5 316.5 321.4 335.8 345.4																	
Pfd Stock \$2.4 mil Pfd Div'd: \$ 1 mil					333.9 366.3 376.5 405.9 422.2 435.2 446.5 465.4 481.9																	
Common Stock 16,346,036 shs as of 10/31/17					5.6% 5.8% 5.0% 5.7% 5.2% 5.4% 5.9% 6.3% 6.6%																	
					8.6% 8.8% 7.0% 8.1% 7.5% 7.8% 8.7% 9.2% 9.6%																	
					8.7% 8.9% 7.0% 8.2% 7.5% 7.8% 8.7% 9.3% 9.6%																	
					1.8% 2.0% 1% 2.1% 1.0% 1.4% 2.4% 3.1%																	
					79% 78% 98% 75% 87% 83% 73% 67%																	
CURRENT POSITION 2016 2016 9/30/17 (\$MILL)					BUSINESS: Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Is Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County New Jersey In 2016, the Middlesex System accounted for 60% of operating revenues At 12/31/16 the company had 309 employees Incorporated: NJ President, CEO and Chairman Dennis W Doi Officers & directors own 3.5% of the common stock BlackRock Institutional Trust Co 7.2% (4/17 proxy); Add 1500 Ronck Road sehn NJ 08830. Tel 732-634-1500 Internet www.middlesexwater.com																	
Cash Assets 3.5 3.9 2.7																						
Other 20.9 22.8 27.4																						
Current Assets 24.4 26.7 30.1																						
Accts Payable 6.5 12.3 12.1																						
Debt Due 8.7 18.2 31.0																						
Other 13.1 16.6 15.9																						
Current Liab. 28.3 47.1 59.0																						
ANNUAL RATES Past Past Est'd '14-'16 of change (per sh) 10 Yrs 5 Yrs to '20-'22																						
Revenues 2.0% 3.0% 3.5%																						
Cash Flow 4.5% 6.5% 8.0%																						
Earnings 5.0% 8.0% 9.0%																						
Dividends 1.5% 1.5% 5.0%																						
Book Value 4.0% 3.0% 4.5%																						
QUARTERLY REVENUES (\$mill)																						
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year																						
2014 27.1 29.2 32.7 28.1 117.1																						
2015 28.8 31.7 34.7 30.8 126.0																						
2016 30.6 32.7 37.8 31.8 132.9																						
2017 30.1 33.0 36.2 34.7 134																						
2018 33.0 37.0 38.0 35.0 143																						
EARNINGS PER SHARE A																						
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year																						
2014 .20 .29 .42 .22 1.13																						
2015 .22 .31 41 .28 1.22																						
2016 .29 .36 .54 .19 1.38																						
2017 .27 .33 .46 .34 1.40																						
2018 .33 .38 .60 .34 1.65																						
QUARTERLY DIVIDENDS PAID B=																						
Cal-endar Mar.31 Jun.30 Sep.30 Dec.31 Full Year																						
2014 .19 .19 .19 1925 .76																						
2015 .1925 1925 .1925 19875 .78																						
2016 .19875 19875 .19875 21125 .81																						
2017 .21125 21125 .21125 22375 .86																						
2018																						
(A) Divided earnings Next earnings report due early February.					(B) Dividends historically paid in mid-Feb., May, Aug., and November. = Div'd reinvestment plan available.					(C) In millions, adjusted for split.												
proved perspective. All told, we look for earnings to expand 18% this year, to \$1.65 a share (+0.05), on revenues of \$143 million (\$2.0 million)																						
Long-term, infrastructure upgrades ought to bear fruit. Approximately \$12 million per year (for the next three years) is earmarked for the replacement of aging water mains, valves, and other infrastructure upgrades.																						
The company boosted its quarterly dividend payout by about 6%, to \$0.224 per share. Shareholders have enjoyed 45 years of consecutive dividend increases, and we don't think this streak will be broken anytime soon. At present, MSEX shares offer a yield that fractionally outpaces the average of all dividend paying stocks in <i>The Value Line Investment Survey</i>.																						
This issue is still a subpar selection for relative year-ahead price performance (Timeliness: 4). What's more total return potential over the pull to 2020 2022 is nothing to write home about. Thus, we think investors can find better options elsewhere, at this juncture.																						
Nicholas P. Patrikis January 12, 2018																						
Company's Financial Strength B++																						
Stock's Price Stability 70																						
Price Growth Persistence 40																						
Earnings Predictability 80																						
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Value Line

Carolina Water Service, Inc.

Docket No. 2017-292-WS

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SJW GROUP NYSE-SJW

RECENT PRICE 63.47 **P/E RATIO** 23.6 (Trading: 23.1 Median: 23.8) **RELATIVE P/E RATIO** 1.15 **DIV'D YLD** 1.4% **VALUE LINE**

TIMELINESS 3 Raised 6/30/17
SAFETY 3 New 4/22/11
TECHNICAL 2 Rated 1/5/18
BETA 70 (vs 100 Market)

2020-22 PROJECTIONS

Price	Gain	Ann'l Total Return
High 90	(+40%)	17%
Low 80	(-8%)	7%

Insider Decisions

M	A	M	J	J	A	S	O	N
to Buy	0	0	0	0	0	0	0	0
to Sell	6	6	0	0	0	0	0	1
to Hold	0	0	0	0	1	0	0	0

Institutional Decisions

Q2 2017	Q2 2016	Q2 2015	
to Buy	83	87	74
to Sell	59	73	56
to Hold	10726	10959	12340

LEGENDS
 150 = Dividends p sh divided by Interest Rate
 --- = Relative Price Strength
 2 for 1 split 3/05
 Ovals: Yes
 Shaded area indicates recession

High 45.3 43.0 35.1 30.4 28.2 28.8 26.9 30.1 33.7 35.7 56.9 89.3
Low 21.2 27.7 20.0 18.2 21.6 20.9 22.8 24.5 25.5 27.5 28.8 45.4

Target Price Range
 2020 2021 2022
 120 100 80 64 48 32 24 20 16 12 8

% TOT. RETURN 12/17
 THIS STOCK INDEX
 1 yr 15.9 15.8
 3 yr 111.7 30.1
 5 yr 189.8 92.5

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.82	12.85	14.01	13.73	15.76	14.97	16.81	18.10	17.95	17.95	17.95	17.95	17.95
1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	4.60	4.80	4.80	4.80	4.80	4.80
77	78	91	87	112	119	104	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	2.40	2.85	2.85	2.85	2.85	2.85
43	46	49	51	53	57	61	65	66	68	69	71	73	75	78	81	1.04	.93	.93	.93	.93	.93
2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	8.00	8.00	8.00	8.00	8.00	8.00
8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	21.65	22.05	22.05	22.05	22.05	22.05
18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.48	21.00	22.00	22.00	22.00	22.00	22.00
18.5	17.3	15.4	18.6	18.7	23.5	33.4	28.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	20.7	20.7	20.7	20.7	20.7	20.7
95	94	88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	59	.84	83	1.01	1.01	1.01	1.01	1.01	1.01
3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.4%	2.5%	2.0%	9%	9%	9%	9%	9%	9%

CAPITAL STRUCTURE as of 9/30/17

Total Debt \$431.0 mil	Due in 6 Yrs \$14.3 mil
LT Debt \$431.0 mil	LT Interest \$20.0 mil (49% of Cap)

Leases, Uncapitalized: Annual rentals \$6.6 mil

Pension Assets-12/16 \$113.9 mil
 Oblig. \$174.1 mil

Pfd Stock None

Common Stock 20,520,856 shs

MARKET CAP: \$1.3 billion (Mid Cap)

CURRENT POSITION (\$mil)	2016	2018	9/30/17
Cash Assets	5.2	25.3	7.6
Accts Receivable	16.4	16.4	63.0
Other	51.8	57.9	16.5
Current Assets	73.4	99.6	87.1
Accts Payable	16.2	18.7	30.7
Debt Due	38.1	14.3	-
Other	25.3	30.6	59.7
Current Liab.	79.6	63.8	90.4

ANNUAL RATES of change (per sh)

18 Yrs.	5 Yrs.	14-'16 to '20-'22
Revenues	5.0%	5.5%
"Cash Flow"	7.0%	12.0%
Earnings	8.0%	20.5%
Dividends	4.0%	3.0%
Book Value	5.5%	6.5%

Cal-ender	Q1	Q2	Q3	Q4	Full Year
2014	54.6	70.4	125.4	69	319
2015	62.1	72.4	83.0	87.6	305.1
2016	81.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	124.6	84.3	360.0
2018	73.0	105	125	90.0	393.0

Cal-ender	Q1	Q2	Q3	Q4	Full Year
2014	04	34	1.88	28	2.54
2015	23	36	46	80	1.85
2016	16	82	92	67	2.57
2017	18	90	94	58	2.60
2018	.27	90	1.00	.68	2.85

Cal-ender	Q1	Q2	Q3	Q4	Full Year
2014	1875	1875	1875	1875	7500
2015	1950	1950	1950	1950	7800
2016	2025	2025	2025	2025	8100
2017	217	2175	2175	3875	10425
2018					

BUSINESS: SJW Group engages in the production, purchase, storage, purification, distribution and retail sale of water. It provides water service to approximately 229,000 connections with a total population of roughly one million people in the San Jose area and 13,000 connections that reaches about 39,000 residents in the region between San Antonio and Austin, Texas. The company also offers nonregulated water-related services and owns and operates commercial real estate investments. Has about 406 employees. Officers and directors (including Nancy O. Moss) own 26.9% outstanding shares (3/17 proxy). Chairman & CEO Richard Roth Inc. California Address 110 West Taylor Street San Jose CA 95110. Telephone (408) 279-7800. Internet: www.sjwater.com

SJW Group has finalized the sale of its wholly-owned subsidiary, Texas Water Alliance Limited. Early last year, SJW entered into an agreement with the Guadalupe-Blanco River Authority for total consideration of \$31 million. SJW netted cash proceeds of \$23.5 million, excluding a \$3 million holdback fee (due 2021). As a result of the completed sale and subsequent proceeds, the board of directors paid a special dividend of \$0.17 a share to stockholders on record as of November 29, 2017. Of note, this is in addition to its regular quarterly distribution. We are boosting our 2018 financial projections for several reasons. First revenue growth is in the cards, driven by cumulative rate increases and higher customer water usage. Meantime, operating expenses have yet to abate (marginally higher in the third quarter), but we think production costs can subside somewhat next year while administrative expenses can be held in check. Lastly a lower effective tax rate stemming from the recent corporate tax overhaul is the primary factor underpinning our bottom-line ramp. All told we now look for revenues of \$395 million (+\$25 million from last report's estimate) and earnings of \$2.85 a share (+\$0.25) this year. Investment spending is still the main theme rolling into next decade. Its spending budget, with approximately \$250 million to \$300 million in available funds will be periodically tapped to support various projects, infrastructure upgrades and general water system investments. Presently, management's focus is on the Montevina Water Treatment Plant project (retrofitting was expected to be completed by the end of 2017). This neutrally ranked equity has etched another high-water mark. Shares of the California based utility pushed past \$65 per share for the first time in its history before settling slightly below that level. Still, the stock logged an advance of about 10% over the past three months. While we are bullish on the company's business prospects over the pull to 2020-2022, SJW's rapid climb in share price gives us pause. In sum, we recommend investors wait for a better entry point before initiating a position here. *Nicholas P. Patrikis January 12, 2018*

(A) Diluted earnings. Excludes nonrecurring losses: '03 \$1.97; '04 \$3.78; '05 \$1.09; '06 \$16.36; '08 \$1.22; '10 \$0.46. GAAP accounting as of 2013. Next earnings report due late February. Quarterly earnings may not add due to rounding.
 (B) Dividends historically paid in early March, June, September, and December. = Div'd reinvestment plan available.
 (C) In millions, adjusted for stock splits.
 (D) Paid special dividend of \$0.17 per share on 11/17

Company's Financial Strength	8+
Stock's Price Stability	70
Price Growth Persistence	35
Earnings Predictability	45

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Value Line

Carolina Water Service, Inc.

Docket No. 2017-292-WS

YORK WATER NDC-YORW		RECENT PRICE	33.35	P/E RATIO	30.0	(Trading: 34.4 Median: 24.0)	RELATIVE P/E RATIO	1.46	DIVID YLD	2.0%	VALUE LINE																																																																																																																																																																																																																																												
TIMELINESS	3 Raised 11/17/17	High	21.0	18.5	18.5	18.0	18.1	18.5	22.0	24.3	26.7	39.8	39.9		Target Price Range	2020	2021	2022																																																																																																																																																																																																																																					
SAFETY	3 Lowered 7/17/15	Low	15.3	15.5	8.2	8.7	12.8	15.8	16.8	17.6	18.8	19.7	23.8	31.7																																																																																																																																																																																																																																									
TECHNICAL	2 Raised 1/5/18	LEGENDS - 10 x Dividends p sh divided by Interest Rate - Relative Price Strength 3 for 2 split 9/06 Options Yes Shaded area indicates recession																																																																																																																																																																																																																																																					
BETA	60 (1.00 = Market)	2020-22 PROJECTIONS Price Gain Ann'l Total Return High 45 (+38%) 70% Low 30 (-10%) Nil																																																																																																																																																																																																																																																					
Insider Decisions		M A M J J A S O N to Buy 1 1 3 2 2 1 3 2 2 1 3 2 Options 0 0 1 3 0 0 0 0 0 0 0 0 to Sell 0 0 0 0 0 0 0 0 0 0 0 0																																																																																																																																																																																																																																																					
Institutional Decisions		10/20/17 30/20/17 30/20/17 to Buy 39 42 40 to Sell 33 33 30 Net Buy 6 9 10 5/127 5/206 5/125																																																																																																																																																																																																																																																					
2001-2022		<table border="1"> <thead> <tr> <th>2001</th><th>2002</th><th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th> <th colspan="3">VALUE LINE PUB LLC 20-22</th> </tr> </thead> <tbody> <tr> <td>2.05</td><td>2.05</td><td>2.17</td><td>2.18</td><td>2.58</td><td>2.58</td><td>2.79</td><td>2.89</td><td>2.95</td><td>3.07</td><td>3.18</td><td>3.21</td><td>3.27</td><td>3.58</td><td>3.68</td><td>3.70</td><td>3.75</td><td>3.95</td> <td>Revenues per sh</td><td>5.40</td><td>5.40</td> </tr> <tr> <td>59</td><td>57</td><td>65</td><td>85</td><td>79</td><td>77</td><td>.86</td><td>.88</td><td>.95</td><td>1.07</td><td>1.09</td><td>1.12</td><td>1.19</td><td>1.36</td><td>1.45</td><td>1.42</td><td>1.45</td><td>1.75</td> <td>"Cash Flow" per sh</td><td>2.35</td><td>2.35</td> </tr> <tr> <td>43</td><td>40</td><td>47</td><td>49</td><td>56</td><td>58</td><td>.57</td><td>.57</td><td>.64</td><td>.71</td><td>.71</td><td>.72</td><td>.75</td><td>.89</td><td>.97</td><td>.92</td><td>1.05</td><td>1.15</td> <td>Earnings per sh A</td><td>1.60</td><td>1.60</td> </tr> <tr> <td>34</td><td>35</td><td>37</td><td>39</td><td>42</td><td>45</td><td>.48</td><td>.49</td><td>.51</td><td>.52</td><td>.53</td><td>.54</td><td>.55</td><td>.57</td><td>.60</td><td>.63</td><td>.65</td><td>.70</td> <td>Div'd Decl'd per sh</td><td>.98</td><td>.98</td> </tr> <tr> <td>75</td><td>66</td><td>107</td><td>2.50</td><td>1.69</td><td>1.85</td><td>1.69</td><td>2.17</td><td>1.18</td><td>.83</td><td>.74</td><td>.94</td><td>.76</td><td>1.10</td><td>1.11</td><td>1.03</td><td>1.43</td><td>1.33</td> <td>Cap'l Spending per sh</td><td>.83</td><td>.83</td> </tr> <tr> <td>379</td><td>3.90</td><td>4.06</td><td>4.65</td><td>5.84</td><td>5.97</td><td>6.14</td><td>6.92</td><td>7.19</td><td>7.45</td><td>7.73</td><td>7.98</td><td>8.15</td><td>8.51</td><td>8.88</td><td>9.30</td><td>9.55</td><td>9.55</td> <td>Book Value per sh</td><td>11.20</td><td>11.20</td> </tr> <tr> <td>9.45</td><td>9.55</td><td>9.63</td><td>10.33</td><td>10.40</td><td>11.20</td><td>11.27</td><td>11.37</td><td>12.56</td><td>12.69</td><td>12.79</td><td>12.92</td><td>12.98</td><td>12.83</td><td>12.81</td><td>12.85</td><td>12.90</td><td>12.75</td> <td>Common Shs Outst'g C</td><td>12.30</td><td>12.30</td> </tr> <tr> <td>17.6</td><td>26.9</td><td>24.5</td><td>25.7</td><td>26.3</td><td>31.2</td><td>30.3</td><td>24.6</td><td>21.9</td><td>20.7</td><td>23.9</td><td>24.4</td><td>26.3</td><td>23.1</td><td>23.5</td><td>32.8</td><td>33.3</td><td>32.8</td> <td>Avg Ann'l P/E Ratio</td><td>22.5</td><td>22.5</td> </tr> <tr> <td>91</td><td>1.47</td><td>1.40</td><td>1.38</td><td>1.40</td><td>1.68</td><td>1.61</td><td>1.48</td><td>1.46</td><td>1.32</td><td>1.50</td><td>1.55</td><td>1.48</td><td>1.22</td><td>1.18</td><td>1.72</td><td>1.42</td><td>1.42</td> <td>Relative P/E Ratio</td><td>1.40</td><td>1.40</td> </tr> <tr> <td>4.4%</td><td>3.3%</td><td>3.2%</td><td>3.1%</td><td>2.9%</td><td>2.5%</td><td>2.8%</td><td>3.5%</td><td>3.6%</td><td>3.5%</td><td>3.1%</td><td>3.1%</td><td>2.8%</td><td>2.6%</td><td>2.6%</td><td>2.1%</td><td>1.9%</td><td>1.9%</td> <td>Avg Ann'l Div'd Yield</td><td>2.8%</td><td>2.8%</td> </tr> </tbody> </table>															2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	VALUE LINE PUB LLC 20-22			2.05	2.05	2.17	2.18	2.58	2.58	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	3.75	3.95	Revenues per sh	5.40	5.40	59	57	65	85	79	77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	1.45	1.75	"Cash Flow" per sh	2.35	2.35	43	40	47	49	56	58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	1.05	1.15	Earnings per sh A	1.60	1.60	34	35	37	39	42	45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	.65	.70	Div'd Decl'd per sh	.98	.98	75	66	107	2.50	1.69	1.85	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	1.43	1.33	Cap'l Spending per sh	.83	.83	379	3.90	4.06	4.65	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	9.30	9.55	9.55	Book Value per sh	11.20	11.20	9.45	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	12.90	12.75	Common Shs Outst'g C	12.30	12.30	17.6	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	33.3	32.8	Avg Ann'l P/E Ratio	22.5	22.5	91	1.47	1.40	1.38	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72	1.42	1.42	Relative P/E Ratio	1.40	1.40	4.4%	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.6%	2.6%	2.1%	1.9%	1.9%	Avg Ann'l Div'd Yield	2.8%	2.8%
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2016	.1555	.1555	.1555	.1602	.627																																																																																																																																																																																																																																																		
2017	.1602	.1602	.1602	.1666	.647																																																																																																																																																																																																																																																		
2018																																																																																																																																																																																																																																																							
BUSINESS:		The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2016, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 196,000. Has more than 67,000 customers. Residential customers accounted for 63% of 2016 revenues; commercial and industrial (29%); other (8%). It also provides sewer billing services. Incorporated PA. York had 105 full-time employees at 12/31/16. President/CEO: Jeffrey R. Hines. Officers/Directors own 11% of the common stock (3/17 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. nmetel www.yorkwater.com.																																																																																																																																																																																																																																																					
Capital expenditures ought to remain par for the course going forward.		Management estimates it spent approximately \$25 million in 2017 on aging infrastructure, raw water pumping stations, and pipe replacements, more than double the year earlier total. With plenty of its footprint still needing to be brought up to speed, we anticipate at least several years of aggressive investment spending. York Water raised its quarterly dividend by 4%, to \$0.17 a share. This marks 21 consecutive years that the company has increased its annual dividend payout. The current yield is fractionally above that of the Value Line median, but should trend higher into next decade thanks to additional dividend hikes. York Water shares have moved up one notch for Timeliness, to 3, and are now pegged to track the year-ahead broader market averages. Prospects out to the 2020-2022 time frame are bright, though most of the benefits we envision appear to already be baked into the stock price. Capital appreciation potential does not stand out at the recent quotation.																																																																																																																																																																																																																																																					
We are adjusting our 2018 top- and bottom-line estimates.		Despite an expanding customer base (acquisition driven), York's top line is under some pressure. We now look for revenues of \$50.5 million in 2018, down from our prior forecast of \$52.0 million. Conversely, we are adding a dime to our earnings per share estimate, to \$1.15.																																																																																																																																																																																																																																																					
Nicholas P. Patrikis		January 12, 2018																																																																																																																																																																																																																																																					

(A) Diluted earnings. Next earnings report due late February.
 (B) Dividends historically paid in late February, June, September, and December

(C) In millions, adjusted for split

Company's Financial Strength	8+
Stock's Price Stability	60
Price Growth Persistence	55
Earnings Predictability	90

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Office of Regulatory Staff
Characteristics of DCF Proxy Group
Carolina Water Service, Inc.
Docket No. 2017-292-WS

REVISED EXHIBIT DHC-4

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<u>Company</u>	<u>Market Capitalization</u> (millions) [‡]	<u>Retention</u> Ratio ^{‡0}	<u>Bond</u> Rating [†]	<u>Trailing P/E</u> [‡]
American States	\$2,100	0.43	A+	30.8
American Water	\$15,900	0.44	A+	30.2
Aqua America	\$6,900	0.50	A+*	29.1
Artesian Resources	\$334	0.35	n/a	26.5
California Water	\$2,100	0.47	A+*	31.5
Connecticut Water	\$700	0.49	A	27.7
Global Water Resources	\$183		n/a	
Middlesex Water	\$650	0.43	A	31.3
SJW	\$1,300	0.65	A*	23.6
York Water	\$426	0.38	A-	34.4

[†]S&P rating from website: <https://www.standardandpoors.com>

*rating is of the principal subsidiary

[‡]from Revised Exhibit DHC-3

^{‡0}Retention ratio = 1 - payout ratio ("All Div'ds to Net Prof" on Revised Exhibit DHC-3)

Office of Regulatory Staff
Earnings per Share - Historical Data
 Carolina Water Service, Inc.
 Docket No. 2017-292-WS

COMPANIES \ YEARS	\$ per share*										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	\$0.81	\$0.78	\$0.81	\$1.11	\$1.12	\$1.41	\$1.61	\$1.57	\$1.60	\$1.62	\$1.85
American Water	N/A	\$1.10	\$1.25	\$1.53	\$1.72	\$2.11	\$2.06	\$2.39	\$2.64	\$2.62	\$3.00
Aqua America	\$0.57	\$0.58	\$0.62	\$0.72	\$0.83	\$0.87	\$1.16	\$1.20	\$1.14	\$1.32	\$1.36
Artesian Resources	\$0.90	\$0.86	\$0.97	\$1.00	\$0.83	\$1.13	\$0.94	\$1.07	\$1.26	\$1.41	N/A
California Water	\$0.75	\$0.95	\$0.98	\$0.91	\$0.86	\$1.02	\$1.02	\$1.19	\$0.94	\$1.01	\$1.40
Connecticut Water	\$1.05	\$1.11	\$1.19	\$1.13	\$1.13	\$1.53	\$1.66	\$1.92	\$2.04	\$2.08	\$2.20
Global Water Resources										-\$0.15	N/A
Middlesex Water	\$0.87	\$0.89	\$0.72	\$0.96	\$0.84	\$0.90	\$1.03	\$1.13	\$1.22	\$1.38	\$1.40
SJW	\$1.04	\$1.08	\$0.81	\$0.84	\$1.11	\$1.18	\$1.12	\$2.54	\$1.85	\$2.57	\$2.60
York Water	\$0.57	\$0.57	\$0.64	\$0.71	\$0.71	\$0.72	\$0.75	\$0.89	\$0.97	\$0.92	\$1.05

COMPANIES \ YEARS	Ratios of Change over Previous Year										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		0.96	1.04	1.37	1.01	1.26	1.14	0.98	1.02	1.01	1.14
American Water		N/A	1.14	1.22	1.12	1.23	0.98	1.16	1.10	0.99	1.15
Aqua America		1.02	1.07	1.16	1.15	1.05	1.33	1.03	0.95	1.16	1.03
Artesian Resources	0.93	0.96	1.13	1.03	0.83	1.36	0.83	1.14	1.18	1.12	N/A
California Water		1.27	1.03	0.93	0.95	1.19	1.00	1.17	0.79	1.07	1.39
Connecticut Water		1.06	1.07	0.95	1.00	1.35	1.08	1.16	1.06	1.02	1.06
Global Water Resources											
Middlesex Water		1.02	0.81	1.33	0.88	1.07	1.14	1.10	1.08	1.13	1.01
SJW		1.04	0.75	1.04	1.32	1.06	0.95	2.27	0.73	1.39	1.01
York Water		1.00	1.12	1.11	1.00	1.01	1.04	1.19	1.09	0.95	1.14

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Revised Exhibit DHC-3 Page 4 of 11.

Office of Regulatory Staff
Earnings per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	10-yr Averages*		5-yr. Averages		3-Yr. Averages	
	Compound	Simple	Compound	Simple	Compound	Simple
American States	8.61%	9.30%	5.58%	5.81%	5.62%	5.79%
American Water	10.86%	12.11%	7.29%	7.57%	7.87%	8.07%
Aqua America	9.09%	10.41%	9.35%	10.12%	4.26%	4.61%
Artesian Resources [†]	3.81%	5.00%	11.18%	12.56%	14.47%	14.50%
California Water	6.44%	7.75%	6.54%	8.34%	5.57%	8.35%
Connecticut Water	7.68%	8.14%	7.53%	7.63%	4.64%	4.66%
Global Water Resources						
Middlesex Water	4.87%	5.79%	9.24%	9.34%	7.40%	7.51%
SJW	9.60%	15.56%	17.12%	26.92%	0.78%	4.31%
York Water	6.30%	6.54%	7.84%	8.16%	5.67%	5.99%
Means	7.47%	8.96%	9.07%	10.72%	6.25%	7.09%
Medians	7.68%	8.14%	7.84%	8.34%	5.62%	5.99%
Average of Mean & Median	8.06%	8.06%	8.99%	8.99%	6.24%	6.24%

*American Water is on a nine-year basis, as 2007 was a pro forma negative number

[†]Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=\$47.3 million.

Average of
Period
Averages
7.76%

Office of Regulatory Staff
Earnings per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

<u>COMPANIES</u>	<u>Estimate</u>	<u>Growth Rate</u>	<u>Sources</u>
American States	\$2.35	7.07%	Revised Exhibit DHC-3, p. 1 of 11
American Water	\$4.15	9.71%	Revised Exhibit DHC-3, p. 2 of 11
Aqua America	\$1.85	9.19%	Revised Exhibit DHC-3, p. 3 of 11
Artesian Resources	\$1.24	5.16%	Revised Exhibit DHC-3, p. 5 of 11
California Water	\$1.85	8.29%	Revised Exhibit DHC-3, p. 6 of 11
Connecticut Water	\$2.90	8.21%	Revised Exhibit DHC-3, p. 7 of 11
Global Water Resources			Revised Exhibit DHC-3, p. 8 of 11
Middlesex Water	\$2.10	12.28%	Revised Exhibit DHC-3, p. 9 of 11
SJW	\$3.45	8.42%	Revised Exhibit DHC-3, p. 10 of 11
York Water	\$1.60	12.79%	Revised Exhibit DHC-3, p. 11 of 11
Means		9.01%	
Medians		8.42%	
Average of Mean & Median		8.72%	

Office of Regulatory Staff
Book Value per Share - Historical Data
 Carolina Water Service, Inc.
 Docket No. 2017-292-WS

	\$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	\$8.77	\$8.97	\$9.70	\$10.13	\$10.84	\$11.80	\$12.72	\$13.24	\$12.77	\$13.52	\$14.20
American Water	N/A	\$25.64	\$22.91	\$23.59	\$24.11	\$25.11	\$26.52	\$27.39	\$28.25	\$29.24	\$30.90
Aqua America	\$5.85	\$6.26	\$6.50	\$6.81	\$7.21	\$7.90	\$8.63	\$9.27	\$9.78	\$10.43	\$11.10
Artesian Resources	\$11.66	\$11.86	\$12.15	\$12.44	\$13.12	\$13.57	\$13.80	\$14.09	\$14.61	\$15.23	N/A
California Water	\$9.25	\$9.72	\$10.13	\$10.45	\$10.76	\$11.28	\$12.54	\$13.11	\$13.41	\$13.75	\$14.30
Connecticut Water	\$11.95	\$12.23	\$12.67	\$13.05	\$13.50	\$20.95	\$17.92	\$18.83	\$20.01	\$20.98	\$24.40
Global Water Resources										\$0.78	N/A
Middlesex Water	\$10.05	\$10.03	\$10.33	\$11.13	\$11.27	\$11.48	\$11.82	\$12.24	\$12.74	\$13.40	\$13.95
SJW	\$12.90	\$13.99	\$13.66	\$13.75	\$14.20	\$14.71	\$15.92	\$17.75	\$18.83	\$20.61	\$21.65
York Water	\$5.97	\$6.14	\$6.92	\$7.19	\$7.45	\$7.73	\$7.98	\$8.15	\$8.51	\$8.88	\$9.30

Sources: see last page of this exhibit

	Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States		1.02	1.08	1.04	1.07	1.09	1.08	1.04	0.96	1.06	1.05
American Water		N/A	0.89	1.03	1.02	1.04	1.06	1.03	1.03	1.04	1.06
Aqua America		1.07	1.04	1.05	1.06	1.10	1.09	1.07	1.06	1.07	1.06
Artesian Resources	1.15	1.02	1.02	1.02	1.05	1.03	1.02	1.02	1.04	1.04	N/A
California Water		1.05	1.04	1.03	1.03	1.05	1.11	1.05	1.02	1.03	1.04
Connecticut Water		1.02	1.04	1.03	1.03	1.55	0.86	1.05	1.06	1.05	1.16
Global Water Resources											
Middlesex Water		1.00	1.03	1.08	1.01	1.02	1.03	1.04	1.04	1.05	1.04
SJW		1.08	0.98	1.01	1.03	1.04	1.08	1.11	1.06	1.09	1.05
York Water		1.03	1.13	1.04	1.04	1.04	1.03	1.02	1.04	1.04	1.05

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Revised Exhibit DHC-3 Page 4 of 11.

Office of Regulatory Staff
Book Value per Share - Historical Data
 Carolina Water Service, Inc.
 Docket No. 2017-292-WS

COMPANIES	10-yr Averages*		5-yr. Averages		3-Yr. Averages	
	Compound	Simple	Compound	Simple	Compound	Simple
American States	4.94%	5.00%	3.77%	3.85%	2.36%	2.45%
American Water	2.10%	2.21%	4.24%	4.24%	4.10%	4.11%
Aqua America	6.61%	6.63%	7.04%	7.05%	6.19%	6.19%
Artesian Resources [†]	4.14%	4.21%	3.03%	3.03%	3.34%	3.35%
California Water	4.45%	4.48%	4.86%	4.91%	2.94%	2.94%
Connecticut Water	7.40%	8.56%	3.10%	3.61%	9.02%	9.14%
Global Water Resources						
Middlesex Water	3.33%	3.35%	3.97%	3.98%	4.46%	4.46%
SJW	5.31%	5.39%	8.04%	8.06%	6.84%	6.86%
York Water	4.53%	4.57%	3.77%	3.77%	4.50%	4.50%
Means	4.76%	4.93%	4.65%	4.72%	4.86%	4.89%
Medians	4.53%	4.57%	3.97%	3.98%	4.46%	4.46%
Average of Mean & Median	4.70%	4.70%	4.33%	4.33%	4.67%	4.67%

Average of
 Period
 Averages
4.56%

*American Water is on a nine-year basis as 2007 was a pro forma negative number

[†]Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=\$47.3 million.

Office of Regulatory Staff
Book Value per Share - Historical Data

Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	Estimate	Growth Rate	Sources
American States	\$16.80	4.92%	Revised Exhibit DHC-3, p. 1 of 11
American Water	\$39.45	7.23%	Revised Exhibit DHC-3, p. 2 of 11
Aqua America	\$14.85	8.67%	Revised Exhibit DHC-3, p. 3 of 11
Artesian Resources			Revised Exhibit DHC-3, p. 5 of 11
California Water	\$16.50	4.17%	Revised Exhibit DHC-3, p. 6 of 11
Connecticut Water	\$26.80	2.72%	Revised Exhibit DHC-3, p. 7 of 11
Global Water Resources			Revised Exhibit DHC-3, p. 8 of 11
Middlesex Water	\$16.75	5.37%	Revised Exhibit DHC-3, p. 9 of 11
SJW	\$24.60	3.72%	Revised Exhibit DHC-3, p. 10 of 11
York Water	\$11.20	5.45%	Revised Exhibit DHC-3, p. 11 of 11
Means		5.28%	
Medians		5.14%	
Average of Mean & Median		5.21%	

Office of Regulatory Staff
Dividends per Share - Historical Data
 Carolina Water Service, Inc.
Docket No. 2017-292-WS

		\$ per share*										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
American States	\$0.48	\$0.50	\$0.51	\$0.52	\$0.55	\$0.64	\$0.76	\$0.83	\$0.87	\$0.91	\$0.99	
American Water	N/A	\$0.40	\$0.82	\$0.86	\$0.90	\$1.21	\$0.84	\$1.21	\$1.33	\$1.47	\$1.62	
Aqua America	\$0.38	\$0.41	\$0.44	\$0.47	\$0.50	\$0.54	\$0.58	\$0.63	\$0.69	\$0.74	\$0.79	
Artesian Resources	\$0.66	\$0.71	\$0.72	\$0.75	\$0.76	\$0.79	\$0.82	\$0.85	\$0.87	\$0.90	N/A	
California Water	\$0.58	\$0.59	\$0.59	\$0.60	\$0.62	\$0.63	\$0.64	\$0.65	\$0.67	\$0.69	\$0.72	
Connecticut Water	\$0.87	\$0.88	\$0.90	\$0.92	\$0.94	\$0.96	\$0.98	\$1.01	\$1.05	\$1.12	\$1.18	
Global Water Resources												
Middlesex Water	\$0.69	\$0.70	\$0.71	\$0.72	\$0.73	\$0.74	\$0.75	\$0.76	\$0.78	\$0.81	\$0.86	
SJW	\$0.61	\$0.65	\$0.66	\$0.68	\$0.69	\$0.71	\$0.73	\$0.75	\$0.78	\$0.81	\$1.04	
York Water	\$0.48	\$0.49	\$0.51	\$0.52	\$0.53	\$0.54	\$0.55	\$0.57	\$0.60	\$0.63	\$0.65	

		Ratios of Change over Previous Year										
COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
American States		1.04	1.02	1.02	1.06	1.16	1.19	1.09	1.05	1.05	1.09	
American Water			2.05	1.05	1.05	1.34	0.69	1.44	1.10	1.11	1.10	
Aqua America		1.08	1.07	1.07	1.06	1.08	1.07	1.09	1.10	1.07	1.07	
Artesian Resources	1.08	1.08	1.01	1.04	1.01	1.04	1.04	1.04	1.02	1.03	N/A	
California Water		1.02	1.00	1.02	1.03	1.02	1.02	1.02	1.03	1.03	1.04	
Connecticut Water		1.01	1.02	1.02	1.02	1.02	1.02	1.03	1.04	1.07	1.05	
Global Water Resources												
Middlesex Water		1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.04	1.06	
SJW		1.07	1.02	1.03	1.01	1.03	1.03	1.03	1.04	1.04	1.28	
York Water		1.02	1.04	1.02	1.02	1.02	1.02	1.04	1.05	1.05	1.03	

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Revised Exhibit DHC-3 Page 4 of 11.

Office of Regulatory Staff
Dividends per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES	10-yr Averages*		5-yr. Averages		3-Yr. Averages	
	Compound	Simple	Compound	Simple	Compound	Simple
American States	7.51%	7.64%	9.12%	9.23%	6.05%	6.07%
American Water	16.81%	21.45%	6.01%	8.82%	10.22%	10.22%
Aqua America	7.59%	7.60%	7.91%	7.91%	7.84%	7.84%
Artesian Resources [†]	3.97%	3.99%	3.44%	3.44%	3.15%	3.15%
California Water	2.19%	2.19%	2.71%	2.71%	3.47%	3.47%
Connecticut Water	3.09%	3.11%	4.21%	4.23%	5.32%	5.33%
Global Water Resources						
Middlesex Water	2.23%	2.24%	3.05%	3.07%	4.21%	4.22%
SJW	5.48%	5.73%	7.93%	8.36%	11.51%	12.08%
York Water	3.08%	3.09%	3.78%	3.79%	4.48%	4.48%
Means	5.77%	6.34%	5.35%	5.73%	6.25%	6.32%
Medians	3.97%	3.99%	4.21%	4.23%	5.32%	5.33%
Average of Mean & Median		5.02%		4.88%		5.80%

Average of
Period
Averages
5.23%

*American Water is on a nine-year basis as 2007 was a pro forma negative number.

[†]Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=\$47.3 million.

Office of Regulatory Staff
Dividends per Share - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

<u>COMPANIES</u>	<u>Estimate</u>	<u>Growth Rate</u>	<u>Sources</u>
American States	\$1.35	9.27%	Revised Exhibit DHC-3, p. 1 of 11
American Water	\$2.35	11.21%	Revised Exhibit DHC-3, p. 2 of 11
Aqua America	\$1.15	11.32%	Revised Exhibit DHC-3, p. 3 of 11
Artesian Resources			Revised Exhibit DHC-3, p. 5 of 11
California Water	\$1.02	10.46%	Revised Exhibit DHC-3, p. 6 of 11
Connecticut Water	\$1.46	6.27%	Revised Exhibit DHC-3, p. 7 of 11
Global Water Resources			Revised Exhibit DHC-3, p. 8 of 11
Middlesex Water	\$1.06	6.16%	Revised Exhibit DHC-3, p. 9 of 11
SJW	\$1.18	3.67%	Revised Exhibit DHC-3, p. 10 of 11
York Water	\$0.96	11.79%	Revised Exhibit DHC-3, p. 11 of 11
Means		8.77%	
Medians		9.86%	
Average of Mean & Median		9.32%	

Office of Regulatory Staff
Sales/Revenue - Historical Data
Carolina Water Service, Inc.
Docket No. 2017-292-WS

COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	\$301	\$319	\$361	\$399	\$419	\$467	\$472	\$466	\$459	\$436	\$445
American Water	N/A	\$2,337	\$2,441	\$2,711	\$2,666	\$2,877	\$2,902	\$3,011	\$3,159	\$3,302	\$3,380
Aqua America	\$603	\$627	\$671	\$726	\$712	\$758	\$769	\$780	\$814	\$820	\$800
Artesian Resources	\$53	\$56	\$61	\$65	\$65	\$71	\$69	\$73	\$77	\$79	N/A
California Water	\$367	\$410	\$449	\$460	\$502	\$560	\$584	\$598	\$588	\$609	\$660
Connecticut Water	\$59	\$61	\$59	\$66	\$69	\$84	\$92	\$94	\$96	\$99	\$106
Global Water Resources											
Middlesex Water	\$86	\$91	\$91	\$103	\$102	\$110	\$115	\$117	\$126	\$133	\$134
SJW	\$207	\$220	\$216	\$216	\$239	\$262	\$277	\$320	\$305	\$340	\$380
York Water	\$31	\$33	\$37	\$39	\$41	\$41	\$42	\$46	\$47	\$48	\$49

\$ per share*

COMPANIES \ YEARS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
American States	1.06	1.13	1.10	1.10	1.05	1.11	1.01	0.99	0.98	0.95	1.02
American Water		1.04	1.11	1.11	0.98	1.08	1.01	1.04	1.05	1.05	1.02
Aqua America	1.04	1.07	1.08	1.08	0.98	1.06	1.01	1.01	1.04	1.01	0.98
Artesian Resources	1.11	1.07	1.08	1.07	1.00	1.08	0.98	1.05	1.06	1.03	N/A
California Water	1.12	1.10	1.02	1.02	1.09	1.12	1.04	1.02	0.98	1.04	1.08
Connecticut Water	1.04	0.97	1.12	1.12	1.05	1.21	1.09	1.03	1.02	1.03	1.07
Global Water Resources											
Middlesex Water	1.06	1.00	1.13	1.13	0.99	1.08	1.04	1.02	1.08	1.05	1.01
SJW	1.07	0.98	1.00	1.00	1.11	1.09	1.06	1.15	0.95	1.11	1.12
York Water	1.04	1.13	1.05	1.05	1.04	1.02	1.02	1.08	1.03	1.01	1.02

Ratios of Change over Previous Year

*Sources are on page 3 of 3 except 2007 numbers of Artesian Resources are from Revised Exhibit DHC-3 Page 4 of 11.

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COMPANIES	10-yr Averages*		5-yr. Averages		3-Yr. Averages	
	Compound	Simple	Compound	Simple	Compound	Simple
American States	3.97%	4.13%	-0.96%	-0.93%	-1.51%	-1.47%
American Water	4.19%	4.24%	3.28%	3.29%	3.93%	3.93%
Aqua America	2.88%	2.94%	1.09%	1.11%	0.85%	0.89%
Artesian Resources [†]	5.28%	5.35%	3.97%	4.04%	4.61%	4.62%
California Water	6.04%	6.13%	3.34%	3.39%	3.37%	3.45%
Connecticut Water	6.03%	6.21%	4.81%	4.85%	4.09%	4.11%
Global Water Resources						
Middlesex Water	4.52%	4.60%	3.95%	3.98%	4.60%	4.63%
SJW	6.28%	6.47%	7.76%	8.00%	5.93%	6.21%
York Water	4.44%	4.50%	3.22%	3.25%	1.85%	1.86%
Means	4.85%	4.95%	3.38%	3.44%	3.08%	3.14%
Medians	4.52%	4.60%	3.34%	3.39%	3.93%	3.93%
Average of Mean & Median		4.73%		3.39%		3.52%

Average of
Period
Averages
3.88%

*American Water is on a nine-year basis as 2007 was a pro forma negative number

[†]Artesian Resources' numbers are set back one year, as 2017 information was not available; 2007=\$47.3 million.

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<u>COMPANIES</u>	<u>Estimate</u>	<u>Growth Rate</u>	<u>Sources</u>
American States	\$590.0	8.39%	Revised Exhibit DHC-3, p. 1 of 11
American Water	\$4,325.0	7.30%	Revised Exhibit DHC-3, p. 2 of 11
Aqua America	\$1,085.0	9.10%	Revised Exhibit DHC-3, p. 3 of 11
Artesian Resources			Revised Exhibit DHC-3, p. 5 of 11
California Water	\$750.0	3.72%	Revised Exhibit DHC-3, p. 6 of 11
Connecticut Water	\$160.0	12.48%	Revised Exhibit DHC-3, p. 7 of 11
Global Water Resources			Revised Exhibit DHC-3, p. 8 of 11
Middlesex Water	\$160.0	5.20%	Revised Exhibit DHC-3, p. 9 of 11
SJW	\$485.0	7.22%	Revised Exhibit DHC-3, p. 10 of 11
York Water	\$67.5	9.91%	Revised Exhibit DHC-3, p. 11 of 11
Means		7.91%	
Medians		7.85%	
Average of Mean & Median		7.88%	

DCF Summary

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Dividend Yields

<u>Company</u>	<u>Yield</u>	<u>Source</u>
American States	1.90%	Revised Exhibit DHC-3, p. 1 of 11
American Water	2.00%	Revised Exhibit DHC-3, p. 2 of 11
Aqua America	2.20%	Revised Exhibit DHC-3, p. 3 of 11
Artesian Resources	2.50%	Revised Exhibit DHC-3, p. 5 of 11
California Water	1.60%	Revised Exhibit DHC-3, p. 6 of 11
Connecticut Water	2.10%	Revised Exhibit DHC-3, p. 7 of 11
Global Water Resources	3.10%	Revised Exhibit DHC-3, p. 8 of 11
Middlesex Water	2.30%	Revised Exhibit DHC-3, p. 9 of 11
SJW	1.40%	Revised Exhibit DHC-3, p. 10 of 11
York Water	2.00%	Revised Exhibit DHC-3, p. 11 of 11
<i>average</i>	2.11%	

Summary of Historical & Estimated Growth Rates

	<u>Historical</u>	<u>Estimates</u>	<u>Average of Historical & Estimates*</u>	<u>Sources of Historical & Averages</u>
EPS	7.76%	8.72%	8.24%	Revised Exhibit DHC-5, pp. 2 & 3
BVPS	4.56%	5.21%	4.89%	Revised Exhibit DHC-6, pp. 2 & 3
DPS	5.23%	9.32%	7.28%	Revised Exhibit DHC-7, pp. 2 & 3
Sales/Rev	3.88%	7.88%	<u>5.88%</u>	Revised Exhibit DHC-8, pp. 2 & 3
		<i>Growth</i>	6.57%	
		<i>+ Dividend Yield</i>	2.11%	
		<i>+Dividend Yield Growth</i>	0.14%	
		<i>= Indicated DCF Cost of Equity</i>	<u>8.82%</u>	

*Computed: (Historical + Estimates)/2

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Company Name	Ticker	Industry	Beta	Book Value 5 Yr Growth Rate
CAE Inc	CAE.TO	Aerospace/Defense	0.75	5.50
CPI Aerostructures Inc	CVU	Aerospace/Defense	0.55	2.50
Elbit Systems Ltd	ESLT	Aerospace/Defense	0.80	9.00
HEICO Corp (Class A)	HEIA	Aerospace/Defense	0.90	8.50
Lockheed Martin Corp	LMT	Aerospace/Defense	0.80	1.00
Raytheon Co	RTN	Aerospace/Defense	0.80	6.00
SIFCO Industries	SIF	Aerospace/Defense	0.75	2.00
Air T Inc	AIRT	Air Transport	0.55	3.50
Allegiant Travel Company	ALGT	Air Transport	0.90	6.50
WestJet Airlines Ltd	WJA.TO	Air Transport	0.80	8.00
Alpha Pro Tech Ltd	APT	Apparel	0.55	5.50
Cherokee Inc	CHKE	Apparel	0.75	24.00
Carters Inc	CRI	Apparel	0.85	6.50
Delta Apparel Inc	DLA	Apparel	0.80	4.50
Dorman Products Inc	DORM	Auto Parts	0.90	15.50
Ameris Bancorp	ABCB	Bank	0.90	10.00
Access National Corporation	ANCX	Bank	0.80	7.50
Arrow Financial Corporation	AROW	Bank	0.75	6.00
Bridge Bancorp Inc	BDGE	Bank	0.90	11.00
Bar Harbor Bankshares	BHB	Bank	0.90	5.50
Bank South Carolina Corp	BKSC	Bank	0.60	5.50
BSB Bancorp Inc	BLMT	Bank	0.60	2.00
Bank of Montreal	BMO.TO	Bank	0.80	9.50
Bank of Marin Bancorp	BMRC	Bank	0.75	9.00
Bryn Mawr Bank Corporation	BMTC	Bank	0.90	9.50
Beneficial Bancorp Inc	BNCL	Bank	0.75	10.50
Bank of Nova Scotia	BNS.TO	Bank	0.85	10.50
Bank of Commerce Holdings	BOCH	Bank	0.60	4.50
Bank of the James Financial Group Inc	BOTJ	Bank	0.55	7.50
Camden National Corporation	CAC	Bank	0.85	6.00
Capital City Bank Group Inc	CCBG	Bank	0.75	1.00
CNB Financial Corporation	CCNE	Bank	0.90	8.50
C and F Financial Corp	CFFI	Bank	0.70	9.50
Chemung Financial Corporation	CHMG	Bank	0.55	2.00
Canadian Imperial Bank of Commerce	CM.TO	Bank	0.80	10.50
Century BanCorp	CNBKA	Bank	0.65	8.00
ConnectOne Bancorp Inc	CNOB	Bank	0.85	17.50
Centerstate Banks Inc	CSFL	Bank	0.90	4.50
Community Shores Bank Corporation	CSHB	Bank	0.55	17.50
Community Trust Bancorp Inc	CTBI	Bank	0.85	6.00
Codorus Valley Bancorp	CVLY	Bank	0.70	8.00

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Citizens and Northern Corp	CZNC	Bank	0.70	5.50
First Bancorp	FBNC	Bank	0.90	0.50
First Connecticut Bancorp Inc	FBNK	Bank	0.70	2.50
First Community Bancshares Inc	FCBC	Bank	0.90	4.50
Farmers Capital Bank Corp	FFKT	Bank	0.80	7.00
First Financial Northwest Inc	FFNW	Bank	0.70	3.00
Financial Institutions Inc	FISI	Bank	0.90	6.00
First Of Long Island Corp	FLIC	Bank	0.90	8.00
FNCB Bancorp Inc.	FNCB	Bank	0.60	6.50
First Bancorp Inc	FNLC	Bank	0.85	3.50
First United Corporation	FUNC	Bank	0.60	5.00
First US Bancshares Inc.	FUSB	Bank	0.60	0.50
Guaranty Bancorp	GBNK	Bank	0.70	1.50
Heritage Financial Corp	HFWA	Bank	0.85	4.00
National Bank of Canada	NA.TO	Bank	0.85	8.50
Northfield Bancorp Inc	NFBK	Bank	0.70	6.00
National Bankshares Inc	NKSH	Bank	0.90	5.50
Northrim BanCorp Inc	NRIM	Bank	0.80	7.00
Old Line Bancshares Inc	OLBK	Bank	0.70	6.50
Oritani Financial Corp	ORIT	Bank	0.75	0.50
Premier Financial Bancorp Inc	PFBI	Bank	0.55	5.00
Peoples Financial Services Corp	PFIS	Bank	0.85	15.50
Peapack Gladstone Financial Corp	PGC	Bank	0.85	9.00
Parke Bancorp Inc	PKBK	Bank	0.55	10.50
Plumas Bancorp	PLBC	Bank	0.55	9.50
Pacific Premier Bancorp	PPBI	Bank	0.90	12.50
Penns Woods Bancorp Inc	PWOD	Bank	0.85	9.00
Royal Bank of Canada	RY.TO	Bank	0.80	11.00
Southern First Bancshares Inc	SFST	Bank	0.70	8.50
Summit Financial Group Inc	SMMF	Bank	0.70	3.50
Summit State Bank	SSBI	Bank	0.55	3.50
Stewardship Financial Corp	SSFN	Bank	0.55	1.50
Stock Yards Bancorp Inc	SYBT	Bank	0.85	9.00
Territorial Bancorp Inc	TBNK	Bank	0.60	3.00
Toronto Dominion Bank	TD.TO	Bank	0.75	9.00
Tompkins Financial Corporation	TMP	Bank	0.90	6.00
Union Bankshares Inc	UNB	Bank	0.55	5.50
UNIVEST Corp of Pennsylvania	UVSP	Bank	0.85	2.50
First Busey Corp	BUSE	Bank (Midwest)	0.85	4.50
Enterprise Financial Services Corp	EFSC	Bank (Midwest)	0.85	11.00
First Business Financial Services Inc	FBIZ	Bank (Midwest)	0.70	9.00
Farmers National Banc Corp	FMNB	Bank (Midwest)	0.70	3.50
First Merchants Corp	FRME	Bank (Midwest)	0.85	6.00
Horizon Bancorp	HBNC	Bank (Midwest)	0.90	10.00
Hawthorn Bancshares Inc	HWBK	Bank (Midwest)	0.55	2.50

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Independent Bank Corporation	IBCP	Bank (Midwest)	0.75	7.50
First Internet Bancorp	INBK	Bank (Midwest)	0.85	5.50
LCNB Corp	LCNB	Bank (Midwest)	0.60	5.50
Lakeland Financial Corp	LKFN	Bank (Midwest)	0.90	9.00
Macatawa Bank Corporation	MCBC	Bank (Midwest)	0.75	13.50
MutualFirst Financial Inc	MFSF	Bank (Midwest)	0.55	13.00
Old Second Bancorp Inc	OSBC	Bank (Midwest)	0.90	10.00
Peoples Bancorp Inc	PEBO	Bank (Midwest)	0.75	4.00
QCR Holdings Inc	QCRH	Bank (Midwest)	0.70	0.50
First Financial Corporation	THFF	Bank (Midwest)	0.85	5.50
Coca Cola Bottling Company	COKE	Beverage	0.80	15.00
Cott Corporation	COT	Beverage	0.90	2.00
Dr Pepper Snapple Group Inc	DPS	Beverage	0.75	0.50
National Beverage	FIZZ	Beverage	0.80	13.50
MGP Ingredients	MGPI	Beverage	0.80	12.00
Monster Beverage Corporation	MNST	Beverage	0.80	30.00
Constellation Brands	STZ	Beverage	0.75	21.00
Molson Coors Brewing Company	TAP	Beverage	0.90	1.50
Willamette Valley Vineyards Inc	WVVI	Beverage	0.70	7.50
ArQule Inc	ARQL	Biotechnology	0.80	24.50
EXACT Sciences Corp	EXAS	Biotechnology	0.80	25.00
iBio Inc	IBIO	Biotechnology	0.85	15.50
Kamada Ltd	KMDA	Biotechnology	0.80	19.50
Myriad Genetics Inc	MYGN	Biotechnology	0.80	9.50
Sinovac Biotech Ltd	SVA	Biotechnology	0.70	0.50
Bio-Techne Corp.	TECH	Biotechnology	0.90	8.50
CBOE Holdings Inc	CBOE	Brokers & Exchanges	0.70	7.50
CME Group Inc	CME	Brokers & Exchanges	0.75	1.00
Intercontinental Exch.	ICE	Brokers & Exchanges	0.80	26.50
Nasdaq Inc.	NDAQ	Brokers & Exchanges	0.90	5.00
Huttig Building Products Inc	HBP	Building Materials	0.90	5.50
ADDvantage Technologies Group Inc	AEY	Cable TV	0.60	4.50
Cogeco Communic.	CCA.TO	Cable TV	0.60	7.00
Cogeco Inc	CGO.TO	Cable TV	0.65	3.00
Comcast Corporation	CMCSA	Cable TV	0.90	6.00
Shaw Communications Inc (Class B)	SJRB.TO	Cable TV	0.65	11.50
Terra Nitrogen	TNH	Chemical (Basic)	0.80	12.00
Landec Corp	LNDC	Chemical (Diversified)	0.90	8.50
Lightwave Logic Inc	LWLG	Chemical (Diversified)	0.70	24.50
Ocean Bio Chem Inc	OBCI	Chemical (Diversified)	0.60	10.50
Adm Tronics Unlimited Inc	ADMT	Chemical (Specialty)	0.80	16.00
Flexible Solutions International Inc	FSI	Chemical (Specialty)	0.85	3.50
Sigma Industries Inc	SSG.TO	Chemical (Specialty)	0.80	5.50
Asure Software Inc	ASUR	Computer Software	0.65	1.50
Computer Modelling Group Ltd	CMG.TO	Computer Software	0.85	5.00

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Formula Systems Ltd	FORTY	Computer Software	0.85	12.00
Information Analysis Incorporated	IAIC	Computer Software	0.60	1.00
Intelligent Systems Corporation New	INS	Computer Software	0.70	30.00
MAM Software Group Inc	MAMS	Computer Software	0.65	1.00
Paybox Corp.	PBOX	Computer Software	0.60	1.50
QAD Inc	QADA	Computer Software	0.90	16.00
RealPage Inc	RP	Computer Software	0.85	9.50
Simulations Plus Inc	SLP	Computer Software	0.60	8.00
Symantec Corp	SYMC	Computer Software	0.90	2.00
Wayside Technology Group Inc	WSTG	Computer Software	0.60	6.50
AstroNova Inc.	ALOT	Computers/Peripherals	0.60	4.00
KeyTronic Corporation	KTCC	Computers/Peripherals	0.70	8.50
Mercury Systems Inc	MRCY	Computers/Peripherals	0.85	5.50
Top Image Systems Ltd	TISA	Computers/Peripherals	0.80	19.50
Chemed Corporation	CHE	Diversified Co.	0.80	7.00
CKX Lands Inc	CKX	Diversified Co.	0.65	6.00
Elxsi Corporation	ELXS	Diversified Co.	0.60	32.50
Kaman Corporation	KAMN	Diversified Co.	0.90	9.00
McRae Industries Inc	MCRAA	Diversified Co.	0.55	9.00
Nobility Homes Inc	NOBH	Diversified Co.	0.70	4.00
Rogers Communications Inc (Class B)	RCIB.TO	Diversified Co.	0.55	8.50
Reading International Inc	RDI	Diversified Co.	0.90	2.50
Seaboard Corp	SEB	Diversified Co.	0.90	11.00
Synalloy Corp	SYNL	Diversified Co.	0.75	1.50
Aradigm Corporation	ARDM	Drug	0.65	30.00
Bristol Myers Squibb Co	BMY	Drug	0.90	2.50
ChromaDex Corporation	CDXC	Drug	0.75	3.00
Cyanotech Corp	CYAN	Drug	0.60	8.50
Eli Lilly and Co	LLY	Drug	0.75	5.50
Perrigo Company Plc Ireland	PRGO	Drug	0.85	36.00
RBC Life Sciences Inc	RBCL	Drug	0.65	52.00
Check Point Software Technologies Inc	CHKP	E-Commerce	0.80	9.50
Magic Software Enterprises Ltd	MGIC	E-Commerce	0.90	12.50
Open Text Corp	OTEX	E-Commerce	0.90	16.50
SharpSpring Inc.	SHSP	E-Commerce	0.90	34.50
Creative Learning Corporation	CLCN	Educational Services	0.70	26.50
Capella Education Company	CPLA	Educational Services	0.90	7.50
CPS Technologies Corp	CPSH	Electrical Equipment	0.80	4.50
FLIR Systems Inc	FLIR	Electrical Equipment	0.90	5.50
WW Grainger Inc	GWW	Electrical Equipment	0.90	2.00
Surge Components Inc/NY	SPRS	Electrical Equipment	0.65	17.50
Espey Manufacturing and Electronics Corp	ESP	Electronics	0.55	1.00
IEH Corporation	IEHC	Electronics	0.55	16.00
LRAD Corp	LRAD	Electronics	0.70	15.00
Magal Security Systems Ltd	MAGS	Electronics	0.70	3.00

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Emerson Radio Corp	MSN	Electronics	0.60	0.50
NAPCO Security Technologies Inc	NSSC	Electronics	0.85	8.00
Smith Midland Corp	SMID	Engineering & Const	0.70	3.00
SNC-Lavalin Group	SNC.TO	Engineering & Const	0.80	17.00
Stantec Inc.	STN.TO	Engineering & Const	0.80	17.00
Beasley Broadcast Group Inc	BBGI	Entertainment	0.85	18.50
DHX Media Ltd	DHXB.TO	Entertainment	0.80	7.50
Saga Communications Inc	SGA	Entertainment	0.90	9.00
Dolby Laboratories Inc	DLB	Entertainment Tech	0.85	5.00
Koss Corporation	KOSS	Entertainment Tech	0.75	3.00
Diversified Royalty Corporation	BEVFF	Environmental	0.85	2.50
Republic Services Inc	RSG	Environmental	0.75	2.00
Stericycle Inc	SRCL	Environmental	0.90	13.50
Waste Connections	WCN	Environmental	0.85	13.00
Ambase Corporation	ABCP	Financial Svcs. (Div.)	0.55	44.50
Assurant Inc	AIZ	Financial Svcs. (Div.)	0.90	11.00
CBIZ Inc	CBZ	Financial Svcs. (Div.)	0.85	12.00
Costar Technologies Inc	CSTI	Financial Svcs. (Div.)	0.60	131.00
Enstar Group Limited	ESGR	Financial Svcs. (Div.)	0.80	12.50
FirstCash Inc.	FCFS	Financial Svcs. (Div.)	0.85	17.50
Fidelity Nat'l Info.	FIS	Financial Svcs. (Div.)	0.90	4.50
FRMO Corporation	FRMO	Financial Svcs. (Div.)	0.60	10.50
GAIN Capital Holdings Inc	GCAP	Financial Svcs. (Div.)	0.90	5.00
Green Dot Corporation	GDOT	Financial Svcs. (Div.)	0.90	18.50
Horace Mann Educators Corporation	HMN	Financial Svcs. (Div.)	0.90	7.00
Hennessy Advisors Inc	HNNA	Financial Svcs. (Div.)	0.75	11.00
Investors Title Company	ITIC	Financial Svcs. (Div.)	0.70	10.00
Morningstar Inc	MORN	Financial Svcs. (Div.)	0.90	22.00
Morguard Corp	MRC.TO	Financial Svcs. (Div.)	0.70	20.50
Nicholas Financial Inc	NICK	Financial Svcs. (Div.)	0.65	5.50
OTC Markets Group Inc	OTCM	Financial Svcs. (Div.)	0.55	10.00
Sutherland Asset Management	SLD	Financial Svcs. (Div.)	0.70	1.50
Steel Partners Holdings LP LTD	SPLP	Financial Svcs. (Div.)	0.65	4.00
JTH Holding Inc	TAX	Financial Svcs. (Div.)	0.85	0.50
Willis Lease Finance Corporation	WLFC	Financial Svcs. (Div.)	0.75	6.00
B and G Foods Inc	BGS	Food Processing	0.60	12.50
Campbell Soup Co	CPB	Food Processing	0.75	12.00
CTD Holdings Inc	CTDH	Food Processing	0.55	7.50
Calavo Growers Inc	CVGW	Food Processing	0.60	13.00
Farmer Brothers Company	FARM	Food Processing	0.85	4.00
Fresh Del Monte Produce Inc	FDP	Food Processing	0.80	4.50
Flowers Foods Inc	FLO	Food Processing	0.90	9.00
Hormel Foods Corporation	HRL	Food Processing	0.75	11.00
Hershey Company	HSY	Food Processing	0.75	6.50
John B Sanfilippo and Son Inc	JBSS	Food Processing	0.65	4.00

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J and J Snack Foods Corp	JJSF	Food Processing	0.80	9.00
Kellogg Company	K	Food Processing	0.70	3.00
Lancaster Colony Corporation	LANC	Food Processing	0.85	1.50
Snyders Lance Inc	LNCE	Food Processing	0.90	8.50
Lifeway Foods Inc	LWAY	Food Processing	0.90	7.00
Medifast Inc	MED	Food Processing	0.85	11.00
Maple Leaf Foods Inc	MFI.TO	Food Processing	0.70	7.50
McCormick and Co	MKC	Food Processing	0.80	4.00
Natural Alternatives International Inc	NAII	Food Processing	0.60	9.00
Nestle SA	NSRGY	Food Processing	0.75	3.50
Pilgrims Pride Corp	PPC	Food Processing	0.90	8.50
Sanderson Farms Inc	SAFM	Food Processing	0.75	13.50
Saputo Inc.	SAP.TO	Food Processing	0.65	13.00
Seneca Foods Corp	SENEB	Food Processing	0.70	6.50
Sino Agro Foods Inc	SIAF	Food Processing	0.55	10.00
JM Smucker Company	SJM	Food Processing	0.75	5.50
Treehouse Foods Inc	THS	Food Processing	0.75	11.00
Tootsie Roll	TR	Food Processing	0.85	2.50
Tyson Foods	TSN	Food Processing	0.80	12.50
Carriage Services Inc	CSV	Funeral Services	0.90	7.50
Crown Crafts Inc	CRWS	Furn/Home Furnishings	0.65	3.50
Culp Inc	CULP	Furn/Home Furnishings	0.90	12.50
Hooker Furniture Corporation	HOFT	Furn/Home Furnishings	0.80	5.00
Kewaunee Scientific Corporation	KEQU	Furn/Home Furnishings	0.55	4.00
Computer Programs and Systems Inc	CPSI	Healthcare Information	0.60	14.00
OptimizeRx Corporation	OPRX	Healthcare Information	0.60	15.50
Quality Systems Inc	QSII	Healthcare Information	0.85	3.00
Deere and Co	DE	Heavy Truck & Equip	0.90	8.00
St Joe Company	JOE	Homebuilding	0.90	2.50
NVR Inc	NVR	Homebuilding	0.85	1.50
Canterbury Park Holding Corp	CPHC	Hotel/Gaming	0.60	3.50
Dover Downs Gaming and Entertainment I	DDE	Hotel/Gaming	0.55	0.50
Full House Resorts Inc	FLL	Hotel/Gaming	0.60	2.50
Golden Entertainment Inc.	GDEN	Hotel/Gaming	0.65	1.00
Gaming Partners International Corp	GPIC	Hotel/Gaming	0.55	6.00
Vail Resorts	MTN	Hotel/Gaming	0.80	5.00
Tropicana Entertainment Inc	TPCA	Hotel/Gaming	0.70	9.50
Trans World Corp New	TWOC	Hotel/Gaming	0.60	3.00
Central Garden and Pet Co	CENT	Household Products	0.85	4.00
Church and Dwight Co Inc	CHD	Household Products	0.70	4.00
Spectrum Brands Holdings Inc New	SPB	Household Products	0.85	8.50
Orchids Paper Products Company	TIS	Household Products	0.90	6.50
Command Center Inc	CCNI	Human Resources	0.75	96.00
Mastech Digital Inc.	MHH	Human Resources	0.80	6.00
ABM Industries Inc	ABM	Industrial Services	0.80	4.50

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CH Robinson Worldwide Inc	CHRW	Industrial Services	0.85	3.00
Conrad Industries Inc	CNRD	Industrial Services	0.60	12.00
Edgewater Technology Inc	EDGW	Industrial Services	0.80	13.00
Exponent Inc	EXPO	Industrial Services	0.90	10.00
Genpact Limited	G	Industrial Services	0.75	2.00
Hackett Group Inc	HCKT	Industrial Services	0.80	2.50
Healthcare Services Group Inc	HCSG	Industrial Services	0.90	5.00
Hudson Technologies Inc	HDSN	Industrial Services	0.90	21.00
ICF International Inc	ICFI	Industrial Services	0.90	9.00
Kingstone Companies Inc	KINS	Industrial Services	0.70	11.50
Rollins Inc	ROL	Industrial Services	0.90	12.00
Superior Uniform Group	SGC	Industrial Services	0.75	5.50
Sigmatron International Inc	SGMA	Industrial Services	0.70	2.50
SP Plus Corporation	SP	Industrial Services	0.80	39.00
Syntel Inc	SYNT	Industrial Services	0.85	8.00
WNS Holdings Limited	WNS	Industrial Services	0.90	6.00
Cogint Inc	COGT	Information Services	0.80	16.50
FBL Financial Group Inc	FFG	Insurance (Life)	0.90	6.00
Independence Holding Company	IHC	Insurance (Life)	0.80	8.00
Power Financial	PWF.TO	Insurance (Life)	0.90	10.50
Security National Financial Corp	SNFCA	Insurance (Life)	0.60	26.50
Arch Cap Group Ltd	ACGL	Insurance (Prop/Cas.)	0.70	13.50
American Financial Group	AFG	Insurance (Prop/Cas.)	0.90	10.50
Allstate Corporation	ALL	Insurance (Prop/Cas.)	0.85	7.50
Berkshire Hathaway Inc New (Class B)	BRKB	Insurance (Prop/Cas.)	0.90	6.00
Baldwin and Lyons Inc	BWINA	Insurance (Prop/Cas.)	0.60	2.00
Chubb Ltd.	CB	Insurance (Prop/Cas.)	0.85	9.50
Cincinnati Financial Corp	CINF	Insurance (Prop/Cas.)	0.90	6.50
Global Indemnity PLC	GBLI	Insurance (Prop/Cas.)	0.75	7.50
Hallmark Financial Services Inc	HALL	Insurance (Prop/Cas.)	0.85	4.00
Infinity Property and Casualty Corporation	IPCC	Insurance (Prop/Cas.)	0.70	3.50
Mercury General Corp	MCY	Insurance (Prop/Cas.)	0.80	1.50
Markel Corp	MKL	Insurance (Prop/Cas.)	0.80	13.50
Navigators Group Inc	NAVG	Insurance (Prop/Cas.)	0.80	7.50
Progressive Corp.	PGR	Insurance (Prop/Cas.)	0.90	8.00
ProAssurance Corp	PRA	Insurance (Prop/Cas.)	0.70	3.50
Safety Insurance Group Inc	SAFT	Insurance (Prop/Cas.)	0.85	1.00
The Travelers Companies Inc	TRV	Insurance (Prop/Cas.)	0.85	6.50
WR Berkley Corp	WRB	Insurance (Prop/Cas.)	0.85	8.00
White Moutains Insurance Group Ltd	WTM	Insurance (Prop/Cas.)	0.60	8.50
XL Group Ltd.	XL	Insurance (Prop/Cas.)	0.90	10.50
Blucora Inc	BCOR	Internet	0.85	5.50
CynergisTek Inc	CTEK	Internet	0.55	29.50
MakeMyTrip Limited	MMYT	Internet	0.80	27.50
Sitestar Corp	SYTE	Internet	0.60	4.00

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Tucows Inc	TCX	Internet	0.90	10.50
XO Group Inc	XOXO	Internet	0.85	1.00
Guardian Cap Group Ltd (Class A)	GCGA.TO	Investment Co.(Foreign)	0.75	9.50
CSG Systems International Inc	CSGS	IT Services	0.90	6.50
Amdocs Ltd	DOX	IT Services	0.80	6.00
Infosys Limited	INFY	IT Services	0.85	9.50
Jack Henry and Associates Inc	JKHY	IT Services	0.85	4.50
Network 1 Technologies Inc	NTIP	IT Services	0.60	18.00
ePlus inc	PLUS	IT Services	0.90	11.50
ATS Automation Tooling Systems	ATA.TO	Machinery	0.80	5.00
CompX International Inc	CIX	Machinery	0.75	7.00
EnviroStar Inc	EVI	Machinery	0.55	5.50
Gencor Industries Inc	GENC	Machinery	0.70	3.50
International Baler Corporation	IBAL	Machinery	0.60	12.00
MSC Industrial Direct Co Inc	MSM	Machinery	0.90	11.50
P F Industries Inc	PFIN	Machinery	0.65	10.00
Sono Tek Corporation	SOTK	Machinery	0.60	10.00
Terra Tech Corporation	TRTC	Machinery	0.80	97.00
WSI Industries Inc	WSCI	Machinery	0.70	5.00
Algoma Central Corp	ALC.TO	Maritime	0.60	2.50
Danaos Corp	DAC	Maritime	0.90	4.00
Baxter International Inc	BAX	Med Supp Invasive	0.85	6.00
Becton Dickinson and Company	BDX	Med Supp Invasive	0.80	13.50
Edwards Lifesciences	EW	Med Supp Invasive	0.85	15.50
Exactech Inc	EXAC	Med Supp Invasive	0.90	7.50
Integra LifeSciences Holdings Corporation	IART	Med Supp Invasive	0.85	4.50
ICU Medical Inc	ICUI	Med Supp Invasive	0.85	12.50
IRIDEX Corporation	IRIX	Med Supp Invasive	0.80	17.00
Intuitive Surgical Inc	ISRG	Med Supp Invasive	0.80	17.50
LeMaitre Vascular Inc	LMAT	Med Supp Invasive	0.60	5.50
Medtronic plc	MDT	Med Supp Invasive	0.90	20.00
Milestone Scientific Inc	MLSS	Med Supp Invasive	0.70	25.50
Nuvasive Inc	NUVA	Med Supp Invasive	0.85	6.50
Repro Med Systems Inc	REPR	Med Supp Invasive	0.80	19.00
Stryker Corp	SYK	Med Supp Invasive	0.90	5.00
Teleflex Inc	TFX	Med Supp Invasive	0.85	1.50
Utah Medical Products Inc	UTMD	Med Supp Invasive	0.85	11.00
Varian Medical System	VAR	Med Supp Invasive	0.90	8.00
Atrion Corporation	ATRI	Med Supp Non-Invasive	0.70	6.00
Bio Rad Laboratories Inc	BIO	Med Supp Non-Invasive	0.85	8.50
Chembio Diagnostics Inc	CEMI	Med Supp Non-Invasive	0.80	14.50
Cogentix Medical, Inc.	CGNT	Med Supp Non-Invasive	0.60	11.50
Cooper Companies Inc	COO	Med Supp Non-Invasive	0.90	7.00
Digirad Corporation	DRAD	Med Supp Non-Invasive	0.85	1.50
Haemonetics Corp	HAE	Med Supp Non-Invasive	0.90	2.50

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Johnson and Johnson	JNJ	Med Supp Non-Invasive	0.85	5.00
Misonix Inc	MSON	Med Supp Non-Invasive	0.85	6.00
NxStage Medical Inc	NXTM	Med Supp Non-Invasive	0.80	4.00
Omnicell Inc	OMCL	Med Supp Non-Invasive	0.90	7.00
Patterson Companies Inc	PDCO	Med Supp Non-Invasive	0.90	3.50
ResMed Inc	RMD	Med Supp Non-Invasive	0.90	3.50
Sonoma Pharmaceuticals Inc.	SNOA	Med Supp Non-Invasive	0.90	1.50
Meridian Bioscience	VIVO	Med Supp Non-Invasive	0.85	3.00
West Pharmaceutical Services Inc	WST	Med Supp Non-Invasive	0.85	9.00
Almost Family Inc	AFAM	Medical Services	0.75	6.50
Anthem Inc.	ANTM	Medical Services	0.90	8.00
Cigna Corporation	CI	Medical Services	0.85	13.50
Quest Diagnostics Inc	DGX	Medical Services	0.90	7.00
DLH Holdings Corporation	DLHC	Medical Services	0.80	19.50
DaVita Inc.	DVA	Medical Services	0.85	17.00
Ensign Group Inc	ENSG	Medical Services	0.85	7.00
Extendicare Inc	EXE.TO	Medical Services	0.70	64.00
Fresenius Medical ADR	FMS	Medical Services	0.80	12.00
Humana Inc	HUM	Medical Services	0.85	10.50
ICON plc	ICLR	Medical Services	0.80	8.00
Laboratory Corp	LH	Medical Services	0.90	14.00
LHC Group	LHCG	Medical Services	0.80	8.00
Mednax Inc	MD	Medical Services	0.85	11.50
Magellan Health Inc	MGLN	Medical Services	0.90	8.00
Natl HealthCare Corp.	NHC	Medical Services	0.85	7.50
Psychemedics Corp	PMD	Medical Services	0.60	5.00
Providence Service Corp	PRSC	Medical Services	0.90	24.50
Eastern Company	EML	Metal Fabricating	0.55	2.50
Caledonia Mining Corp. PLC.	CAL.TO	Metals & Mining (Div.)	0.55	15.50
Kaiser Aluminum Corporation	KALU	Metals & Mining (Div.)	0.85	1.00
Mountain Province Diamonds Inc	MPVD.TO	Metals & Mining (Div.)	0.65	8.50
Nevsun Resources Ltd	NSU.TO	Metals & Mining (Div.)	0.70	19.50
U S Lime and Minerals	USLM	Metals & Mining (Div.)	0.85	8.50
Daily Journal Corp	DJCO	Newspaper	0.80	14.00
Manhattan Bridge Capital Inc	LOAN	Newspaper	0.65	3.00
Acme United Corp	ACU	Office Equip/Supplies	0.60	9.50
Badger Daylighting Ltd	BAD.TO	Oilfield Svcs/Equip.	0.75	18.00
North American Energy Partners Inc	NOA.TO	Oilfield Svcs/Equip.	0.60	1.50
CCL Industries	CCLB.TO	Packaging & Container	0.70	8.00
Intertape Polymer Group Inc	ITPOF	Packaging & Container	0.85	4.00
Northern Technologies International Corp	NTIC	Packaging & Container	0.65	6.00
Silgan Holdings Inc	SLGN	Packaging & Container	0.90	3.00
UFP Technologies Inc	UFPT	Packaging & Container	0.90	13.00
Winpak Ltd	WPK.TO	Packaging & Container	0.65	9.00
Clearwater Paper	CLW	Paper/Forest Products	0.85	7.50

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Getty Realty Corp	GTY	Petroleum (Integrated)	0.85	4.00
Reserve Petroleum Co	RSRV	Petroleum (Producing)	0.80	5.00
Tengasco Inc	TGC	Petroleum (Producing)	0.75	6.00
CVS Caremark Corporation	CVS	Pharmacy Services	0.85	5.00
IntelGenx Technologies Corporation	IGXT	Pharmacy Services	0.75	5.50
Jean Coutu Group (Class A)	PJCA.TO	Pharmacy Services	0.55	20.00
AmeriGas Partners LP	APU	Pipeline MLPs	0.75	2.50
Spectra Energy Part.	SEP	Pipeline MLPs	0.90	17.50
Emera Inc.	EMA.TO	Power	0.60	12.50
Agnico Eagle Mines Ltd	AEM	Precious Metals	0.55	3.00
Compania De Minas Buenaventura SA	BVN	Precious Metals	0.90	4.00
Franco Nevada Corp	FNV	Precious Metals	0.60	4.50
Mag Silver Corp	MAG	Precious Metals	0.85	4.50
Seabridge Gold Inc	SA	Precious Metals	0.65	2.50
Analogic Corp	ALOG	Precision Instrument	0.80	4.00
Luna Innovations Incorporated	LUNA	Precision Instrument	0.75	24.00
OSI Systems Inc	OSIS	Precision Instrument	0.85	8.50
Research Frontiers Inc	REFR	Precision Instrument	0.85	4.50
Transcat Inc	TRNS	Precision Instrument	0.70	11.50
Waters Corp	WAT	Precision Instrument	0.90	17.50
Wireless Telecom	WTT	Precision Instrument	0.70	6.00
Compass Diversified	CODI	Public/Private Equity	0.70	6.00
Solar Capital Ltd	SLRC	Public/Private Equity	0.80	4.00
Avalonbay Communities Inc	AVB	R.E.I.T.	0.70	12.00
Boston Properties Inc	BXP	R.E.I.T.	0.90	2.50
Digital Realty Trust Inc	DLR	R.E.I.T.	0.80	8.00
Equity Residential	EQR	R.E.I.T.	0.75	10.00
Extra Space Storage	EXR	R.E.I.T.	0.80	9.50
Federal Realty Investment Trust	FRT	R.E.I.T.	0.75	5.50
Welltower Inc.	HCN	R.E.I.T.	0.70	5.00
Macerich Co	MAC	R.E.I.T.	0.85	8.50
Annaly Capital Management Inc	NLY	R.E.I.T.	0.65	6.00
Realty Income Corporation	O	R.E.I.T.	0.70	13.50
Ventas Inc	VTR	R.E.I.T.	0.75	14.00
Amer. Outdoor Brands	AOBC	Recreation	0.90	22.50
Carnival Corp	CCL	Recreation	0.90	1.50
Hasbro Inc	HAS	Recreation	0.90	3.00
Mattel Inc	MAT	Recreation	0.85	1.00
Sturm Ruger and Co	RGR	Recreation	0.90	14.50
Argo Group Int'l	AGII	Reinsurance	0.90	8.00
Aspen Insurance Holdings Limited	AHL	Reinsurance	0.90	4.50
Axis Capital Holdings Ltd	AXS	Reinsurance	0.80	7.00
EMC Insurance Group Inc	EMCI	Reinsurance	0.85	6.50
Everest Re Group Ltd	RE	Reinsurance	0.80	10.50
Renaissancere Holdings Ltd	RNR	Reinsurance	0.70	11.50

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Validus Holdings	VR	Reinsurance	0.80	5.50
Biglari Holdings Inc	BH	Restaurant	0.85	3.50
BJs Restaurants Inc	BJRI	Restaurant	0.90	3.50
Cheesecake Factory Inc	CAKE	Restaurant	0.75	4.50
Cracker Barrel Old Country Store Inc	CBRL	Restaurant	0.75	20.50
Chipotle Mexican Grill Inc	CMG	Restaurant	0.85	17.50
DineEquity Inc	DIN	Restaurant	0.80	33.50
Darden Restaurants Inc	DRI	Restaurant	0.85	5.00
Noble Romans Inc	NROM	Restaurant	0.70	5.50
RCI Hospitality Holdings Inc	RICK	Restaurant	0.80	8.00
Rocky Mountain Chocolate Factory Inc	RMCF	Restaurant	0.65	3.00
Texas Roadhouse Inc	TXRH	Restaurant	0.85	7.50
Luxottica Group Spa	LUXTY	Retail (Hardlines)	0.90	6.00
PCM Inc	PCMI	Retail (Hardlines)	0.70	3.50
Tandy Leather Factory Inc	TLF	Retail (Hardlines)	0.65	10.50
Ulta Beauty	ULTA	Retail (Hardlines)	0.90	26.00
Citi Trends Inc	CTRN	Retail (Softlines)	0.80	1.50
Foot Locker Inc	FL	Retail (Softlines)	0.90	7.50
Francescas Holdings Corporation	FRAN	Retail (Softlines)	0.75	49.50
Childrens Place Inc	PLCE	Retail (Softlines)	0.85	5.50
TJX Companies Inc	TJX	Retail (Softlines)	0.90	11.00
Monro Inc.	MNRO	Retail Automotive	0.90	12.50
Alexanders Inc	ALX	Retail Store	0.80	1.00
Costco Wholesale Corporation	COST	Retail Store	0.80	1.00
Canadian Tire 'A'	CTCA.TO	Retail Store	0.70	6.00
Dollar General Corporation	DG	Retail Store	0.85	10.00
Dollar Tree Inc	DLTR	Retail Store	0.85	24.00
PriceSmart	PSMT	Retail Store	0.90	1.00
Walmart Inc.	WMT	Retail Store	0.70	5.00
Ali. Couche-Tard	ATDB.TO	Retail/Wholesale Food	0.80	24.50
Caseys General Stores Inc	CASY	Retail/Wholesale Food	0.75	5.50
Core Mark Holding Co Inc	CORE	Retail/Wholesale Food	0.75	6.00
Empire Company Limited (Class A)	EMPA.TO	Retail/Wholesale Food	0.60	9.00
Ingles Markets Incorporated	IMKTA	Retail/Wholesale Food	0.85	3.50
Kroger Co	KR	Retail/Wholesale Food	0.90	11.50
Loblaw Cos. Ltd.	L.TO	Retail/Wholesale Food	0.65	6.50
Metro Inc	MRU.TO	Retail/Wholesale Food	0.60	7.00
Village Super Market Inc	VLGEA	Retail/Wholesale Food	0.75	3.50
Weis Markets	WMK	Retail/Wholesale Food	0.90	4.00
George Weston Ltd	WN.TO	Retail/Wholesale Food	0.65	5.00
Alpha and Omega Semiconductor Limited	AOSL	Semiconductor	0.80	1.50
AXT Inc	AXTI	Semiconductor	0.70	2.50
Cirrus Logic Inc	CRUS	Semiconductor	0.85	21.00
Photronics Inc	PLAB	Semiconductor Equip	0.65	5.00
Rocky Brands Inc	RCKY	Shoe	0.90	4.50

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Friedman Industries Inc	FRD	Steel	0.65	0.50
ADTRAN Inc	ADTN	Telecom. Equipment	0.85	2.00
ClearOne Inc	CLRO	Telecom. Equipment	0.65	18.50
Frequency Electronics Inc	FEIM	Telecom. Equipment	0.70	4.00
Preformed Line Products Company	PLPC	Telecom. Equipment	0.85	3.50
Radcom Ltd	RDCM	Telecom. Equipment	0.90	8.50
TESSCO Technologies Inc	TESS	Telecom. Equipment	0.85	4.50
ATN International	ATNI	Telecom. Services	0.75	18.50
China Mobile Limited	CHL	Telecom. Services	0.80	7.00
Hawaiian Telecom	HCOM	Telecom. Services	0.80	15.50
Internet Initiative Japan Inc	IJJI	Telecom. Services	0.75	22.50
KT Corp	KT	Telecom. Services	0.75	13.00
AT&T	T	Telecom. Services	0.75	1.00
Telus Corp	T.TO	Telecom. Services	0.60	1.50
Torotel Inc	TTLO	Telecom. Services	0.80	13.50
Vonage Holdings Corp	VG	Telecom. Services	0.80	80.50
New Ulm Telecom Inc	NULM	Telecom. Utility	0.55	2.50
Berkshire Hills Bancorp Inc	BHLB	Thrift	0.85	2.50
Brookline Bancorp Inc	BRKL	Thrift	0.90	2.50
Capitol Federal Financial Inc	CFFN	Thrift	0.75	1.00
Charter Financial Corp	CHFN	Thrift	0.70	14.00
Clifton Bancorp Inc	CSBK	Thrift	0.60	14.00
Dime Community Bancshares Inc	DCOM	Thrift	0.90	7.50
Meridian Bancorp Inc	EBSB	Thrift	0.65	3.00
ESSA Bancorp Inc	ESSA	Thrift	0.55	3.50
First Defiance Financial Corp	FDEF	Thrift	0.80	5.00
Home Bancorp Inc	HBCP	Thrift	0.60	7.00
HMN Financial Inc	HMNF	Thrift	0.60	6.50
Investors Bancorp Inc	ISBC	Thrift	0.90	21.50
Kearny Financial	KRNY	Thrift	0.80	19.50
NASB Financial Inc	NASB	Thrift	0.65	6.00
Northwest Indiana Bancorp	NWIN	Thrift	0.55	7.00
New York Community Bancorp Inc	NYCB	Thrift	0.90	0.50
OceanFirst Financial Corp	OCFC	Thrift	0.75	7.00
Provident Financial Services Inc	PFS	Thrift	0.90	3.50
Provident Financial Holdings Inc	PROV	Thrift	0.60	6.00
Southern Missouri Bancorp Inc	SMBC	Thrift	0.60	9.50
TFS Financial Corporation	TFSL	Thrift	0.85	0.50
Timberland Bancorp Inc	TSBK	Thrift	0.60	5.50
United Community Bancorp	UCBA	Thrift	0.55	18.00
Waterstone Financial Inc	WSBF	Thrift	0.70	20.00
Schweitzer Mauduit International Inc	SWM	Tobacco	0.75	2.50
Universal Corp	UVV	Tobacco	0.90	6.50
Estee Lauder Companies Inc	EL	Toiletries/Cosmetics	0.80	11.00

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United Guardian Inc	UG	Toiletries/Cosmetics	0.55	0.50
Heartland Express Inc	HTLD	Trucking	0.90	6.50
Landstar System Inc	LSTR	Trucking	0.90	15.50
Crown Castle International Corporation	CCI	Wireless Networking	0.85	17.50
ORBCOMM Inc	ORBC	Wireless Networking	0.85	2.50
Spok Holdings Inc	SPOK	Wireless Networking	0.90	10.50
Ubiquiti Networks Inc	UBNT	Wireless Networking	0.90	33.00
			Average/Mean	9.58
			Median	7.00
			Average of Mean & Median	8.29
			Average, if $\beta < 0.75$	9.53
			Average, if $\beta \geq 0.75$	9.61
			Average of stratified growth rates	9.57
			$\beta \leq 0.75$, weighted by 44%*	4.19
			$\beta > 0.75$, weighted by 56%*	5.38
			Weighted stratified average	9.58
			Average of simple, stratified & weighted averages	9.15

*See Revised Exhibit DHC-13

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Company Name	Ticker	Beta	Industry	Book Value Proj 3 To 5 Year Growth Rate
ABM Industries Inc	ABM	0.80	Industrial Services	3.50
Barrick Gold Corporation	ABX	0.80	Precious Metals	7.50
Arch Cap Group Ltd	ACGL	0.70	Insurance (Prop/Cas.)	10.00
Analogic Corp	ALOG	0.80	Precision Instrument	2.00
AmeriGas Partners LP	APU	0.75	Pipeline MLPs	3.00
Ali. Couche-Tard	ATDB.TO	0.80	Retail/Wholesale Food	13.50
ATN International	ATNI	0.75	Telecom. Services	4.50
Axis Capital Holdings Ltd	AXS	0.80	Reinsurance	5.00
BCE Inc	BCE	0.75	Telecom. Utility	8.00
Becton Dickinson and Company	BDX	0.80	Med Supp Invasive	20.00
Bank of Montreal	BMO.TO	0.80	Bank	9.50
CAE Inc	CAE.TO	0.75	Aerospace/Defense	7.00
Conagra Brands	CAG	0.70	Food Processing	7.00
Cheesecake Factory Inc	CAKE	0.75	Restaurant	7.00
Caseys General Stores Inc	CASY	0.75	Retail/Wholesale Food	8.50
Cracker Barrel Old Country Store Inc	CBRL	0.75	Restaurant	7.50
Capitol Federal Financial Inc	CFFN	0.75	Thrift	2.50
Church and Dwight Co Inc	CHD	0.70	Household Products	8.00
Chemed Corporation	CHE	0.80	Diversified Co.	14.00
Check Point Software Technologies Inc	CHKP	0.80	E-Commerce	9.00
Clorox Co	CLX	0.65	Household Products	33.00
Canadian Imperial Bank of Commerce	CM.TO	0.80	Bank	10.50
CME Group Inc	CME	0.75	Brokers & Exchanges	3.00
Compass Diversified	CODI	0.70	Public/Private Equity	6.50
Coca Cola Bottling Company	COKE	0.80	Beverage	20.00
Core Mark Holding Co Inc	CORE	0.75	Retail/Wholesale Food	9.50
Costco Wholesale Corporation	COST	0.80	Retail Store	10.00
Campbell Soup Co	CPB	0.75	Food Processing	19.50
Canadian Tire 'A'	CTCA.TO	0.70	Retail Store	5.00
Citi Trends Inc	CTRN	0.80	Retail (Softlines)	5.00
DineEquity Inc	DIN	0.80	Restaurant	1.50
Amdocs Ltd	DOX	0.80	IT Services	5.50
Dr Pepper Snapple Group Inc	DPS	0.75	Beverage	9.00
DSP Group Inc	DSPG	0.80	Wireless Networking	2.00
Estee Lauder Companies Inc	EL	0.80	Toiletries/Cosmetics	3.50
Erie Indemnity Company	ERIE	0.80	Insurance (Prop/Cas.)	8.50
Elbit Systems Ltd	ESLT	0.80	Aerospace/Defense	11.00
Fresh Del Monte Produce Inc	FDP	0.80	Food Processing	9.50
National Beverage	FIZZ	0.80	Beverage	11.00
Fresenius Medical ADR	FMS	0.80	Medical Services	10.50
Forrester Research Inc	FORR	0.70	Information Services	6.50
Franciscas Holdings Corporation	FRAN	0.75	Retail (Softlines)	7.50
Genpact Limited	G	0.75	Industrial Services	17.50
Goldcorp Inc	GG	0.75	Precious Metals	1.00
General Mills Inc	GIS	0.75	Food Processing	7.00
Globus Medical Inc	GMED	0.80	Med Supp Invasive	14.00

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Hawaiian Telcom	HCOM	0.80 Telecom. Services	1.50
Hormel Foods Corporation	HRL	0.75 Food Processing	10.00
Hershey Company	HSY	0.75 Food Processing	18.00
Intercontinental Exch.	ICE	0.80 Brokers & Exchanges	8.00
ICON plc	ICLR	0.80 Medical Services	19.50
Intuitive Surgical Inc	ISRG	0.80 Med Supp Invasive	13.00
J and J Snack Foods Corp	JJSF	0.80 Food Processing	8.00
Kellogg Company	K	0.70 Food Processing	13.00
Konami Corporation	KNMCY	0.80 Foreign Electronics	7.00
Loblaw Cos. Ltd.	L.TO	0.65 Retail/Wholesale Food	5.50
Eli Lilly and Co	LLY	0.75 Drug	9.50
Lockheed Martin Corp	LMT	0.80 Aerospace/Defense	6.00
Logitech International SA	LOGI	0.80 Computers/Peripherals	13.00
Mercury General Corp	MCY	0.80 Insurance (Prop/Cas.)	3.00
MGP Ingredients	MGPI	0.80 Beverage	14.00
McCormick and Co	MKC	0.80 Food Processing	14.00
Markel Corp	MKL	0.80 Insurance (Prop/Cas.)	3.50
Monster Beverage Corporation	MNST	0.80 Beverage	19.50
Altria Group Inc	MO	0.65 Tobacco	15.00
Vail Resorts	MTN	0.80 Hotel/Gaming	20.00
Myriad Genetics Inc	MYGN	0.80 Biotechnology	9.50
Northland Power Inc	NPI.TO	0.70 Power	14.00
Northwest Bancshares Inc	NWBI	0.80 Thrift	2.50
Phibro Animal Health	PAHC	0.75 Food Processing	19.00
Par Pacific Holdings	PARR	0.80 Petroleum (Integrated)	7.50
PepsiCo Inc	PEP	0.80 Beverage	6.00
Pinnacle Foods Inc	PF	0.80 Food Processing	3.00
Procter and Gamble Co	PG	0.65 Household Products	5.00
Photronics Inc	PLAB	0.65 Semiconductor Equip	4.00
Everest Re Group Ltd	RE	0.80 Reinsurance	7.00
Renaissancere Holdings Ltd	RNR	0.70 Reinsurance	5.00
Republic Services Inc	RSG	0.75 Environmental	6.50
Raytheon Co	RTN	0.80 Aerospace/Defense	6.50
Royal Bank of Canada	RY.TO	0.80 Bank	8.50
Sanderson Farms Inc	SAFM	0.75 Food Processing	15.50
Saputo Inc.	SAP.TO	0.65 Food Processing	9.00
JM Smucker Company	SJM	0.75 Food Processing	5.50
Shaw Communications Inc (Class B)	SJRB.TO	0.65 Cable TV	3.00
SNC-Lavalin Group	SNC.TO	0.80 Engineering & Const	4.50
Stantec Inc.	STN.TO	0.80 Engineering & Const	11.00
StoneMor Partners LP	STON	0.75 Funeral Services	16.00
Constellation Brands	STZ	0.75 Beverage	10.00
Schweitzer Mauduit International Inc	SWM	0.75 Tobacco	9.50
AT&T	T	0.75 Telecom. Services	6.50
Toronto Dominion Bank	TD.TO	0.75 Bank	10.00
Treehouse Foods Inc	THS	0.75 Food Processing	6.00
Terra Nitrogen	TNH	0.80 Chemical (Basic)	6.50
Thomson Reuters Corp	TRI.TO	0.75 Information Services	7.00
Tyson Foods	TSN	0.80 Food Processing	9.50

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CEM-Prospective
Carolina Water Service, Inc.
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Vonage Holdings Corp	VG	0.80 Telecom. Services	13.00
Village Super Market Inc	VLGEA	0.75 Retail/Wholesale Food	5.00
Validus Holdings	VR	0.80 Reinsurance	5.50
Verizon Communications Inc	VZ	0.80 Telecom. Services	6.00
WestJet Airlines Ltd	WJA.TO	0.80 Air Transport	7.50
Waste Management	WM	0.75 Environmental	4.50
Walmart Inc.	WMT	0.70 Retail Store	4.00
George Weston Ltd	WN.TO	0.65 Retail/Wholesale Food	8.00
		Average/Mean	8.86
		Median	7.50
		Average of Mean & Median	8.18
		Average, if $\beta < 0.75$	8.84
		Average, if $\beta \geq 0.75$	8.88
		Average of stratified growth rates	8.86
		$\beta \leq 0.75$, weighted by 44%*	3.89
		$\beta > 0.75$, weighted by 56%*	<u>4.97</u>
		Weighted stratified average	<u>8.86</u>
		Average of simple, stratified & weighted averages	8.63
		Retrospective Book growth	9.15
		Prospective Book growth	<u>8.63</u>
		Indicated CEM Cost of Equity	<u>8.89</u>

OFFICE OF REGULATORY STAFF
U.S. Census Quarterly Financial Report and Calculations Based upon It
Carolina Water Service, Inc.
Docket No. 2017-292-WS



U.S. Census Bureau

Source: Quarterly Financial Report

All Manufacturing: U.S. Total

Not Seasonally Adjusted Total Assets [Millions of Dollars]

Period: 2002 to 2017

Data Extracted on: August 4, 2017 (3:30 pm)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	4,733,073	4,767,543	4,780,278	4,823,219
2003	4,905,287	5,021,709	5,033,355	5,162,852
2004	5,280,255	5,371,716	5,451,203	5,538,113
2005	5,590,232	5,657,787	5,800,190	5,828,716
2006	5,998,529	6,116,322	6,205,970	6,179,142
2007	6,297,423	6,520,599	6,689,008	6,891,131
2008	7,075,200	7,152,498	7,081,610	6,819,681
2009	6,733,755	6,783,626	6,827,720	6,942,972
2010	7,082,521	7,189,592	7,346,330	7,432,384
2011	7,593,783	7,754,262	7,812,542	7,907,376
2012	8,098,156	8,165,826	8,317,436	8,331,651
2013	8,458,261	8,605,267	8,733,733	8,838,478
2014	8,921,595	9,031,403	9,103,699	9,088,807
2015	9,236,651	9,443,403	9,585,409	9,632,509
2016	9,763,918	9,958,829	10,103,978	10,213,936
2017	10,334,714	NA	NA	NA

OFFICE OF REGULATORY STAFF
U.S. Census Quarterly Financial Report and Calculations Based upon It
Carolina Water Service, Inc.
Docket No. 2017-292-WS



U.S. Census Bureau

Source: Quarterly Financial Report

All Manufacturing: U.S. Total

Not Seasonally Adjusted Total Liabilities [Millions of Dollars]

Period: 2002 to 2017

Data Extracted on: February 20, 2018 (1:16 pm)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	2,936,601	2,948,215	2,950,295	3,052,936
2003	3,062,972	3,083,952	3,077,270	3,090,094
2004	3,167,214	3,194,583	3,230,278	3,223,895
2005	3,238,902	3,268,717	3,362,435	3,365,083
2006	3,392,411	3,441,958	3,467,135	3,484,075
2007	3,522,047	3,620,521	3,729,365	3,838,938
2008	3,988,920	4,069,796	4,021,906	4,126,764
2009	4,135,332	4,135,752	3,957,093	3,935,594
2010	4,039,019	4,072,140	4,127,076	4,106,492
2011	4,152,554	4,203,106	4,269,796	4,427,111
2012	4,517,909	4,566,588	4,640,912	4,697,347
2013	4,743,587	4,831,184	4,885,360	4,836,900
2014	4,907,989	4,972,584	5,020,058	5,153,122
2015	5,270,266	5,427,572	5,547,612	5,625,845
2016	5,712,751	5,883,012	5,966,004	6,114,987
2017	6,156,789	6,222,641	6,326,520	

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U.S. Census Quarterly Financial Report and Calculations Based upon It
Carolina Water Service, Inc.
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Change in Net Equity, Based upon Preceding Tables
(deep yellow=decline; light yellow=below previous high)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2002	1,796,472	1,819,328	1,829,983	1,770,283
2003	1,842,315	1,937,757	1,956,085	2,072,758
2004	2,113,041	2,177,133	2,220,925	2,314,218
2005	2,351,330	2,389,070	2,437,755	2,463,633
2006	2,606,118	2,674,364	2,738,835	2,695,067
2007	2,775,376	2,900,078	2,959,643	3,052,193
2008	3,086,280	3,082,702	3,059,704	2,692,917
2009	2,598,423	2,647,874	2,870,627	3,007,378
2010	3,043,502	3,117,452	3,219,254	3,325,892
2011	3,441,229	3,551,156	3,542,746	3,480,265
2012	3,580,247	3,599,238	3,676,524	3,634,304
2013	3,714,674	3,774,083	3,848,373	4,001,578
2014	4,013,606	4,058,819	4,083,641	3,935,685
2015	3,966,385	4,015,831	4,037,797	4,006,664
2016	4,051,167	4,075,817	4,137,974	4,098,949
2017	4,177,925			

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Carolina Water Service, Inc.
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% Change in Net Equity, Based upon Preceding Table
(quarter over same quarter previous year)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2003	2.55%	6.51%	6.89%	17.09%
2004	14.69%	12.35%	13.54%	11.65%
2005	11.28%	9.73%	9.76%	6.46%
2006	10.84%	11.94%	12.35%	9.39%
2007	6.49%	8.44%	8.06%	13.25%
2008	11.20%	6.30%	3.38%	-11.77%
2009	-15.81%	-14.11%	-6.18%	11.68%
2010	17.13%	17.73%	12.14%	10.59%
2011	13.07%	13.91%	10.05%	4.64%
2012	4.04%	1.35%	3.78%	4.43%
2013	3.75%	4.86%	4.67%	10.11%
2014	8.05%	7.54%	6.11%	-1.65%
2015	-1.18%	-1.06%	-1.12%	1.80%
2016	2.14%	1.49%	2.48%	2.30%
2017	3.13%			

Office of Regulatory Staff

CAP-M

Carolina Water Service, Inc.

Docket No. 2017-292-WS

<u>Company</u>	<u>β^*</u>	<u>Source</u>
American States	0.80	Revised Exhibit DHC-3, p.1
American Water	0.65	Revised Exhibit DHC-3, p.2
Aqua America	0.75	Revised Exhibit DHC-3, p.3
Artesian Resources	0.65	Revised Exhibit DHC-3, p.5
California Water	0.80	Revised Exhibit DHC-3, p.6
Connecticut Water	0.65	Revised Exhibit DHC-3, p.7
Global Water Resources	N/A	Revised Exhibit DHC-3, p.8
Middlesex Water	0.80	Revised Exhibit DHC-3, p.9
SJW	0.70	Revised Exhibit DHC-3, p.10
York Water	<u>0.80</u>	Revised Exhibit DHC-3, p.11
	<u><i>median</i></u>	

*Proportion of companies by β : 56% ≥ 0.75 ; 44% < 0.75

CAP-M

Carolina Water Service, Inc.
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Excerpt from SBBI, 2017 (added calculations shown in box):

Exhibit 7-1: Aggregate Market Capitalization and company Counts of the CRSP (NYSE/NYSE MKT/ NASDAQ) Deciles and Size groupings
31-Dec-16

Decile	Historic Average		Recent Number of Companies	Recent Decile Market Capitalization (in \$thousands)	Recent Percentage of Total Capitalization	Percent of Recent Companies
	Percentage of Total Capitalization	Percentage of Total Capitalization				
1-largest	63.13%		191	15,290,475,300	66.12%	5.9%
2	13.95%		200	3,010,671,018	13.02%	6.2%
3	7.55%		202	1,609,575,618	6.96%	6.3%
4	4.73%		221	1,010,851,810	4.37%	6.9%
5	3.26%		227	677,120,067	2.93%	7.0%
6	2.41%		259	541,037,999	2.34%	8.0%
7	1.79%		283	384,129,198	1.66%	8.8%
8	1.33%		361	297,164,943	1.28%	11.2%
9	1.03%		487	212,609,644	0.92%	15.1%
10-smallest	0.82%		790	92,882,169	0.40%	24.5%

Office of Regulatory Staff

CAP-M

Carolina Water Service, Inc.
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Exhibit 7-6 [further SBBI excerpt: returns; added calculations shown in boxes]

Decile	Geometric Mean	Arithmetic Mean	Geometric Mean Weightings by Number of Companies
1-largest	9.30%	11.10%	0.55%
2	10.60%	12.80%	0.66%
3	11.00%	13.60%	0.69%
4	10.80%	13.80%	0.74%
5	11.50%	14.60%	0.81%
6	11.40%	14.80%	0.92%
7	11.60%	15.40%	1.02%
8	11.60%	16.10%	1.30%
9	11.60%	17.00%	1.75%
10-smallest	13.30%	20.30%	3.26%
	Average 11.27%		Weighted Average 11.70%

Average	11.27%	14.95%	11.70%
ERP*	7.57%	11.25%	8.00%
Risk-adjust ERP [†]	5.68%	8.44%	6.00%
CAP-M cost of Equity [‡]	9.38%	12.14%	9.70%

$$(9.38 + 9.70)/2 = 9.54$$

*Based on R_f at Revised Exhibit DHC-2; R_m - R_f

[†]Based on median β, p.1 of this exhibit; ERP * β

[‡]R_f + Risk-Adjusted ERP; result rounded

Office of Regulatory Staff
Comparison of Interest-Only and Regular Loan
Carolina Water Service, Inc.
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Year	Interest	Principal	Total Cash Flow	Remaining Principal	Coupon Rate
2006	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2007	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2008	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2009	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2010	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2011	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2012	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2013	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2014	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2015	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2016	\$ (11,844,000.00)	\$ 180,000,000.00	\$ (11,844,000.00)	\$ 180,000,000.00	6.58%
2017	\$ (11,844,000.00)	\$ (9,000,000.00)	\$ (20,844,000.00)	\$ 171,000,000.00	6.58%
2018	\$ (11,251,800.00)	\$ (9,000,000.00)	\$ (20,251,800.00)	\$ 162,000,000.00	6.58%
2019	\$ (10,659,600.00)	\$ (9,000,000.00)	\$ (19,659,600.00)	\$ 153,000,000.00	6.58%
2020	\$ (10,067,400.00)	\$ (9,000,000.00)	\$ (19,067,400.00)	\$ 144,000,000.00	6.58%
2021	\$ (9,475,200.00)	\$ (9,000,000.00)	\$ (18,475,200.00)	\$ 135,000,000.00	6.58%
2022	\$ (8,883,000.00)	\$ (9,000,000.00)	\$ (17,883,000.00)	\$ 126,000,000.00	6.58%
2023	\$ (8,290,800.00)	\$ (9,000,000.00)	\$ (17,290,800.00)	\$ 117,000,000.00	6.58%
2024	\$ (7,698,600.00)	\$ (9,000,000.00)	\$ (16,698,600.00)	\$ 108,000,000.00	6.58%
2025	\$ (7,106,400.00)	\$ (9,000,000.00)	\$ (16,106,400.00)	\$ 99,000,000.00	6.58%
2026	\$ (6,514,200.00)	\$ (9,000,000.00)	\$ (15,514,200.00)	\$ 90,000,000.00	6.58%
2027	\$ (5,922,000.00)	\$ (9,000,000.00)	\$ (14,922,000.00)	\$ 81,000,000.00	6.58%
2028	\$ (5,329,800.00)	\$ (9,000,000.00)	\$ (14,329,800.00)	\$ 72,000,000.00	6.58%
2029	\$ (4,737,600.00)	\$ (9,000,000.00)	\$ (13,737,600.00)	\$ 63,000,000.00	6.58%
2030	\$ (4,145,400.00)	\$ (9,000,000.00)	\$ (13,145,400.00)	\$ 54,000,000.00	6.58%
2031	\$ (3,553,200.00)	\$ (9,000,000.00)	\$ (12,553,200.00)	\$ 45,000,000.00	6.58%
2032	\$ (2,961,000.00)	\$ (9,000,000.00)	\$ (11,961,000.00)	\$ 36,000,000.00	6.58%
2033	\$ (2,368,800.00)	\$ (9,000,000.00)	\$ (11,368,800.00)	\$ 27,000,000.00	6.58%
2034	\$ (1,776,600.00)	\$ (9,000,000.00)	\$ (10,776,600.00)	\$ 18,000,000.00	6.58%
2035	\$ (1,184,400.00)	\$ (9,000,000.00)	\$ (10,184,400.00)	\$ 9,000,000.00	6.58%
2036	\$ (592,200.00)	\$ (9,000,000.00)	\$ (9,592,200.00)	\$ -	6.58%
TOTAL	\$ (242,802,202.00)	\$ (9,000,000,008.1)	\$ (242,802,200.00)		

Office of Regulatory Staff
Comparison of Interest-Only and Regular Loan
 Carolina Water Service, Inc.
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<u>Year</u>	<u>Interest</u>	<u>Principal</u>	<u>Total Cash Flow</u>	<u>Remaining Principal</u>	<u>Coupon Rate</u>	<u>Difference in Interest</u>
2006	\$ 180,000,000.00	\$ 180,000,000.00	\$ 180,000,000.00	\$ 180,000,000.00		\$ -
2007	\$ (11,844,000.00)	\$ (6,000,000.00)	\$ (17,844,000.00)	\$ 174,000,000.00	6.58%	\$ (394,800.00)
2008	\$ (11,449,200.00)	\$ (6,000,000.00)	\$ (17,449,200.00)	\$ 168,000,000.00	6.58%	\$ (789,600.00)
2009	\$ (11,054,400.00)	\$ (6,000,000.00)	\$ (17,054,400.00)	\$ 162,000,000.00	6.58%	\$ (1,184,400.00)
2010	\$ (10,659,600.00)	\$ (6,000,000.00)	\$ (16,659,600.00)	\$ 156,000,000.00	6.58%	\$ (1,579,200.00)
2011	\$ (10,264,800.00)	\$ (6,000,000.00)	\$ (16,264,800.00)	\$ 150,000,000.00	6.58%	\$ (1,974,000.00)
2012	\$ (9,870,000.00)	\$ (6,000,000.00)	\$ (15,870,000.00)	\$ 144,000,000.00	6.58%	\$ (2,368,800.00)
2013	\$ (9,475,200.00)	\$ (6,000,000.00)	\$ (15,475,200.00)	\$ 138,000,000.00	6.58%	\$ (2,763,600.00)
2014	\$ (9,080,400.00)	\$ (6,000,000.00)	\$ (15,080,400.00)	\$ 132,000,000.00	6.58%	\$ (3,158,400.00)
2015	\$ (8,685,600.00)	\$ (6,000,000.00)	\$ (14,685,600.00)	\$ 126,000,000.00	6.58%	\$ (3,553,200.00)
2016	\$ (8,290,800.00)	\$ (6,000,000.00)	\$ (14,290,800.00)	\$ 120,000,000.00	6.58%	\$ (3,948,000.00)
2017	\$ (7,896,000.00)	\$ (6,000,000.00)	\$ (13,896,000.00)	\$ 114,000,000.00	6.58%	\$ (3,750,600.00)
2018	\$ (7,501,200.00)	\$ (6,000,000.00)	\$ (13,501,200.00)	\$ 108,000,000.00	6.58%	\$ (3,553,200.00)
2019	\$ (7,106,400.00)	\$ (6,000,000.00)	\$ (13,106,400.00)	\$ 102,000,000.00	6.58%	\$ (3,355,800.00)
2020	\$ (6,711,600.00)	\$ (6,000,000.00)	\$ (12,711,600.00)	\$ 96,000,000.00	6.58%	\$ (3,158,400.00)
2021	\$ (6,316,800.00)	\$ (6,000,000.00)	\$ (12,316,800.00)	\$ 90,000,000.00	6.58%	\$ (2,961,000.00)
2022	\$ (5,922,000.00)	\$ (6,000,000.00)	\$ (11,922,000.00)	\$ 84,000,000.00	6.58%	\$ (2,763,600.00)
2023	\$ (5,527,200.00)	\$ (6,000,000.00)	\$ (11,527,200.00)	\$ 78,000,000.00	6.58%	\$ (2,566,200.00)
2024	\$ (5,132,400.00)	\$ (6,000,000.00)	\$ (11,132,400.00)	\$ 72,000,000.00	6.58%	\$ (2,368,800.00)
2025	\$ (4,737,600.00)	\$ (6,000,000.00)	\$ (10,737,600.00)	\$ 66,000,000.00	6.58%	\$ (2,171,400.00)
2026	\$ (4,342,800.00)	\$ (6,000,000.00)	\$ (10,342,800.00)	\$ 60,000,000.00	6.58%	\$ (1,974,000.00)
2027	\$ (3,948,000.00)	\$ (6,000,000.00)	\$ (9,948,000.00)	\$ 54,000,000.00	6.58%	\$ (1,776,600.00)
2028	\$ (3,553,200.00)	\$ (6,000,000.00)	\$ (9,553,200.00)	\$ 48,000,000.00	6.58%	\$ (1,579,200.00)
2029	\$ (3,158,400.00)	\$ (6,000,000.00)	\$ (9,158,400.00)	\$ 42,000,000.00	6.58%	\$ (1,381,800.00)
2030	\$ (2,763,600.00)	\$ (6,000,000.00)	\$ (8,763,600.00)	\$ 36,000,000.00	6.58%	\$ (1,184,400.00)
2031	\$ (2,368,800.00)	\$ (6,000,000.00)	\$ (8,368,800.00)	\$ 30,000,000.00	6.58%	\$ (987,000.00)
2032	\$ (1,974,000.00)	\$ (6,000,000.00)	\$ (7,974,000.00)	\$ 24,000,000.00	6.58%	\$ (789,600.00)
2033	\$ (1,579,200.00)	\$ (6,000,000.00)	\$ (7,579,200.00)	\$ 18,000,000.00	6.58%	\$ (592,200.00)
2034	\$ (1,184,400.00)	\$ (6,000,000.00)	\$ (7,184,400.00)	\$ 12,000,000.00	6.58%	\$ (394,800.00)
2035	\$ (789,600.00)	\$ (6,000,000.00)	\$ (6,789,600.00)	\$ 6,000,000.00	6.58%	\$ (197,400.00)
2036	\$ (394,800.00)	\$ (6,000,000.00)	\$ (6,394,800.00)	\$ -	6.58%	\$ -
TOTALS	\$ (582,582,582.00)	\$ (582,582,582.00)	\$ (582,582,582.00)	Cost of interest-only		\$ (59,220,000.00)